$1.95

NOVEMBER/DECEMBER 1984

INCORPORATING MicroKids™

K POWER™

HACKER HEAVEN PULLOUT:
16 PAGES OF PROGRAMS
FOR APPLE, ATARI, COLECO,
COMMODORE, IBM, RADIO
SHACK, TI, AND TIMEX!

FOR THE COMPUTER GENERATION • PUBLISHED BY SCHOLASTIC INC.

Let Your Computer Organize Your Hobbies!

A Buyer's Guide to Portables

Reviews of *Amazon*, *Castles of Dr. Creep*, *Cell Defense*!

Strategy Tips for *Zork*!

Make Computer Music with Microt

0 76956 14009 11

Take our educat home. And be a

America's schools need your help!

The publishers of America's number one educational program make you this unusual offer: Take any of our educational programs home and be a hero once, because kids love the fun we bring to learning. As a bonus we'll send the program of your choice to your school, free, including a gift card in your name. You'll help meet the acute need for superior software in our schools. You'll be a hero twice!**

The Scarborough System has a complete range of programs to stimulate, challenge and help you or your children be more productive—including Your Personal Net Worth, that makes handling home finances fast and easy, Make Millions, an adult business simulation game, and PictureWriter,* a program that makes drawing on the computer fun. At your dealer's now.

The Scarborough

©Scarborough Systems, Inc., 25 N. Broadway, Tarrytown, New York 10591

ional software hero twice!

MasterType™* Sharpen typing skills and increase computer facility. MasterType is the nation's best-selling educational program. It's an entertaining game that teaches typing as it increases the keyboard skills needed to be at home with a computer. And there's a bonus on top of this bonus: when we send a copy to your local school, at your request, your child will become even more proficient with a computer.

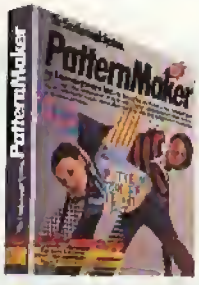
Run for the Money™ Learn to pursue profits in the real world by escaping from an alien planet. Here's an excitingly different, action-packed game of business strategy for two players. Your children will have fun as they learn a lot about business.

Phi Beta Filer™* New for children and adults. Organizes lists of addresses, dates, insurance and medical records, hobbies and collections—even school work—structures quizzes on any subject, quickly and easily. (Not available for Atari.)

Songwriter™* Kids and adults will love making music at the computer. Just press a key to listen, press a key to record, and you've started your own composition. It's a fun way to learn about music. And Songwriter can be played through your stereo or computer.

*National Education Association Teacher Certified Software.

MasterType
Phi Beta Filer
GUIDE



PatternMaker.™ An amazing software program. It's geometry. It's art. It's great fun. Kids can build dazzling patterns and learn a lot. PatternMaker builds a foundation that can be applied to many professions and crafts. It challenges creativity and effectively teaches symmetry, color and design, and it's just as much fun for grown-ups, too.

Our programs are available for: IBM-PC/ PCjr, Apple II family, Commodore 64, Atari.

You'll grow with us.

System.

Yes! I want to software a school!

**Enclosed is the completed warranty card and sales receipt for the purchase of a Scarborough product. I am enclosing my check for $3.50 to cover handling, shipping and postage required to send a free copy of a Scarborough program to the school listed below. A gift card with my name will be enclosed.

Your Name (for gift card)_____

Name of Principal_____

Name of School_____

Address (school address only)_____

City_____ State_____ Zip_____

Software will be sent only to verifiable school addresses.

Offer Expires Dec. 15, 1984

Check computer used in school:
☐ Comm. 64 ☐ Atari ☐ Apple II family ☐ IBM

Check product to be sent to school:
☐ MasterType ☐ Songwriter ☐ Phi Beta Filer
☐ PatternMaker ☐ PictureWriter† ☐ Run for the Money

† Apple only.

Make check payable and mail to:
Scarborough Systems, 25 N. Broadway, Tarrytown, N.Y. 10591

LIST

VOL. 1 NO. 8 NOVEMBER/DECEMBER 1984

FEATURES

22 SPACE: THE FUN FRONTIER
A look at computer games for Trekkies!

41 LET YOUR COMPUTER ORGANIZE YOUR HOBBY!
Need help sorting out your collection? Here it is! Plus, a look at hobby software. And a program to help you organize your hobby!

47 COMPUTERS TO GO
K-POWER's guide to buying a portable computer. And a chart of portables you might go for.

DEPARTMENTS

4 EDITOR'S NOTE
How to make your computer part of the holidays.

6 LOGON
Pen pal information, reader requests, and a coconut!

9 COMPUZINE
The lowdown on new computer TV shows. Plus, an exclusive report from a computer trade show, Silicon Alley, and Scrolling in Dough.

HACKER HEAVEN

25 PROGRAMS
Palindrome Construction Kit, *Music Gizmo*, *Amazing Drumulator*, and *Melodies from Mars*. Plus, the winners of the *Word Twister* Contest.

32 PIXEL THAT!
Take off with the *E-Z Flight Simulator*.

35 COMPUCOPIA
Encoder/Decoder Contest winners.

37 MICROTONES
Musical Stings—mini-routines that play tunes! For the Apple, ADAM, CoCo, and more.

40 MICRONOTES
Computer/music news, including a word about The Human League.

18 DR. KURSOR'S KLINIC
The Dvorak keyboard, and big news for Timex owners.

20 K-NET
How to battle on-line frustration.

52 SCREENING ROOM
Reviews of *Amazon*, *Cell Defense*, *Beyond Castle Wolfenstein*, *Jack Attack*, and *Castles of Dr. Creep*.

60 STRATEGY
Zork hints! And, how to survive fantasy/role playing games.

63 CLASSIFIED

64 CONTEST
What's the use of computers?

Cover Photo: Rick Barrick

PREVIEW SIX HOT NEW EPYX COMPUTER GAMES FOR $3.00. OR LESS.

How about a chance to set a world record in eight Olympic-style events at the Summer Games. A game so realistic there's even an opening ceremony and awards ceremony after each event plus national anthems from 18 different countries.

This is your chance to save the world, but Elvin's complex underground laboratory and over 90 deadly robots may make your Mission Impossible.

Your chance to Breakdance with the best of them right on your TV screen. This game makes Breakdancing easy, even if you have two left feet.

The first baseball game where actual player and team statistics combine with your managing talents and playing skills to determine the outcome.

What could be more challenging than a battle for supremacy of the Silicon Valley? Compete against a friend or up to three computer opponents on a 3-D power grid in outer space.

Let Ken Uston drive you crazy as you try to solve over forty different puzzles that test your reasoning ability, logic, coordination and powers of observation.

SUMMER GAMES,™ IMPOSSIBLE MISSION,™ BREAKDANCE,™ THE WORLD'S GREATEST BASEBALL GAME,™ SILICON WARRIOR,™ and PUZZLEPANIC™ are hot new Action-Strategy™ games from EPYX. Now they're yours to preview on your Commodore 64 home computer for only $3.00 (price includes shipping and handling).

Buy one of the games from your local retailer, and we'll refund your $3.00. So the disk becomes yours for free.

Just make out a check or money order to EPYX, send it with the coupon below, and we'll send you a disk in the mail.

A disk for $3.00 or for free.

Good fun should always be this cheap.

Previews of Six New EPYX Games on a disk for the **Commodore 64™** home computer. This offer expires November 30, 1984, and is valid only in the continental United States.

Send Check or Money Order for $3.00 to:

EPYX PREVIEW DISK
P.O. Box 4017
Young America, MN 55399

Name _____ Age _____

Address _____ City _____

State/Zip _____

EPYX COMPUTER SOFTWARE

Please allow four to six weeks for delivery.

Commodore 64 is a trademark of Commodore Business Machines, Inc.

EDITOR'S NOTE

Holiday Computing

'Tis the season to turn your programming power into holiday computing power! There's tons of holiday stuff your computer can help you with.

Assistant Editor Bernadette Grey and some of K-POWER's resident hackers came up with these holiday computing ideas. Try one or do 'em all—either way, they'll get you and your computer into the holiday mood. (And don't forget to check out K-POWER's bonus Holiday Issue next month for lots more holiday computing!)

• Is your holiday budget hurting? Turn your programming power into great computing gifts. Why not use your 32K to write that special and awesome game you've been dreaming up for months? Save the program on cassette or disk, wrap it up, and give it to your best friend. He or she will know how much time you spent on it.

For a great family gift, plot your family tree! For a free list of genealogy programs, turn to K-POWER's hobbies article in this issue.

Better yet, ever think of giving programming lessons as a holiday gift? They're a practical, fun present, and (best of all) they won't cost you a penny, just some time doing what you like best.

• Organize your holiday card list with a commercial data base. Or write your own homemade program. Commodore and Apple owners can use the K-POWER hobby data-base program, page 44 for this task.

• Bring out the holiday tunes as usual, but play them on your computer! In K-POWER's bonus Holiday Issue next month, you'll find music programs just right for the festivities!

• Bring your Christmas tree into the age of computers with "computer-y" holiday decorations. Hang old printer ribbon, daisy wheels, and ruined disks from the branches. (Try some gold spray paint or glitter on 'em!)

• Don't forget to hang a big stocking out for—you guessed it—your computer. Let everybody know what your computer needs this year—like blank disks, a cleaning product, spare printer ribbons, a BASIC programming book, a disk file, or even a computer cover. After all, if your computer's going to help you out during the holidays, it deserves a reward!

Anne Krueger

ANNE KRUEGER, Editor

SCHOLASTIC INC. CORPORATE
Maurice R. Robinson, founder, 1895-1982
PRESIDENT, CHIEF EXECUTIVE OFFICER AND CHAIRMAN OF THE BOARD: Richard Robinson
VICE-CHAIRMAN OF THE BOARD EMERITUS: Jack K. Lippert

NATIONAL ADVISORY COUNCIL
Dr. Sidney P. Marland Jr., chairman, former superintendent of schools and U.S. Commissioner of Education • Dr. Gregory Anrig, president, Educational Testing Service • Elaine Banks, past president, National Association of Elementary School Principals • Michael J. Guerra, executive director, secondary schools, National Catholic Education Association • Dr. Lois Jane May, mathematics consultant, Winnetka, Illinois, public schools • Dr. Wilson Riles, former superintendent of public instruction, State Department of Education, California • Dr. Richard Ruopp, president, Bank Street College of Education • Patsy R. Scales, Library and media specialist, Greenville (South Carolina) Middle School • Elaine Steinkemeyer, president, The National PTA •

K-POWER (ISSN 0741-5192) is published seven (7) times annually; bimonthly Jan./Feb., Mar./Apr., May/June, July/Aug., Sept./Oct., Nov./Dec., and a holiday issue occurring in Dec. by Scholastic Inc., 730 Broadway, New York, NY 10003. Subscriptions in the U.S. and possessions, 7 issues for $8.97; outside the U.S., add $1 (surface mail) and $14 (air mail). Office of publication: 351 Garver Rd., Box 2700, Monroe, OH, 45050-2700. Application to Mail at Second Class Postage Rates is pending at Monroe, Ohio, 45050-9998 and additional offices. POSTMASTER: Send address changes and notice of undelivered copies to K-POWER, P.O. Box 2511, Boulder, CO 80322. Printed in U.S.A.

Copyright © 1984 by Scholastic Inc. All rights reserved.

K-POWER™
730 Broadway, New York, NY 10003
(212) 505-3580

EDITOR-IN-CHIEF: Claudia Cohl
DESIGN DIRECTOR: Vincent Ceci

EDITORIAL
EDITOR: Anne Krueger
ART DIRECTOR: Peter Aguanno
MANAGING EDITOR: June Rogoznica
ASSOCIATE EDITOR: John Holmstrom
REVIEWS EDITOR: John D. Wallace Jr.
ASSISTANT EDITORS: Bernadette Grey, Michael B. Tuomey
COPY AND RESEARCH CHIEF: Roxane Farmanfarmaian
COPY AND RESEARCH ASSISTANTS: Kathryn Bonn, Linda Williams
DESIGN ASSOCIATE: Robin Poosikian
TECHNICAL DIRECTOR: Lance Paavola
TECHNICAL EDITOR: John Jainschigg
ASSOCIATE TECHNICAL EDITOR: Joey Latimer
COMPUTER LABORATORY SUPERVISOR: Christopher Niles
CONTRIBUTING TECHNICAL EDITORS: Steven C.M. Chen, Joe Gelman
TECHNICAL ASSISTANTS: Donald Chin, Peter Cockcroft, Al Drayton, Lee Fischman, Justin Greene, Gary Lee, Kwong Lee, Damon Osgood, Roland Thomas
ADMINISTRATIVE COORDINATOR: Karen Cohen
ADMINISTRATIVE ASSISTANTS: Moneesh Bakshi, Suzette Harvey, Alexander Whitaker
CONTRIBUTING EDITORS: Charles Ardai, Ken Coach, Pam Horowitz, Jane King, David Langendoen, Dan Persons, Alex Shakar, John Skoog, Rich Uhlig, Ken Weiner

PUBLISHING
PUBLISHER: Shirrel Rhoades
BUSINESS MANAGER: Steven Abromowitz
CIRCULATION PLANNING DIRECTOR: Harold Shain
CIRCULATION PROMOTION DIRECTOR: Deede Dickson
CIRCULATION BUSINESS MANAGER: John Squires
CIRCULATION STAFF: Lisa Cucinello, Mark Mitton, Patricia Neal
PRODUCTION MANAGER: David J. Lange
BUSINESS/PRODUCTION COORDINATOR: Virginia Ferrara
PUBLICITY MANAGER: Susan Soriano

ADVERTISING SALES OFFICES
ASSOCIATE PUBLISHER/ADVERTISING: Glenn Gray (212) 505-3585
ADVERTISING DIRECTOR: Charlene D. LeGrand (212) 505-3586
MARKETING DIRECTOR: Michael H. Tchong (212) 505-3589
ASSOCIATE ADVERTISING DIRECTOR AND NORTHEAST MANAGER: Steve Rosenfield (212) 505-3587
MIDWEST MANAGER: Bruce Gardner (212) 505-3588
NEW ENGLAND REPRESENTATIVE: Tom Ballou (212) 505-3621
SOUTHEAST REPRESENTATIVE: Louis Cona (212) 505-3628
WESTERN MANAGER: Deborah Currier (213) 471-3455, 12011 San Vicente Blvd., Suite 302, Los Angeles, CA 90049
SOUTHWEST REPRESENTATIVE: Brenda Faucheux (213) 471-3455
NATIONAL SALES ASSISTANT: Millicent Callender (212) 505-3630
TELEMARKETING DIRECTOR: Susan M. Belair (212) 505-3620
TELEMARKETING REPRESENTATIVES: Marianne Ettisch (212) 505-3615, Carol Graziano (212) 505-3629
TELEMARKETING SALES ASSISTANT: Megan Van Peebles (212) 505-3636

PITSTOP II™. BECAUSE AUTO RACING IS NOT A SOLO SPORT.

When we introduced Pitstop, we created action in the pits. Now, with PITSTOP II, EPYX introduces true competitive auto racing, both on the track and in the pits. Auto racing is not a one man sport. With PITSTOP II, you can now experience the thrill of speed and competition as you battle your opponent in a race against the clock. Now, more than ever, the strategy of when you make a pit stop and your pit crew's speed and performance, combined with your skill on the track, will determine the winner.

A split screen shows you your position and that of your opponent, a digital clock displays time and a lap counter gives you your race position as you race against each other in pursuit of the checkered flag. You can also play against the computer and take a practice lap or race against the computer controlled pace car as you prepare for real head-to-head competition. Step up to PITSTOP II because auto racing is not a solo sport.

One or two players: joystick controlled.

EPYX™ COMPUTER SOFTWARE

Strategy Games for the Action-Game Player

LOGON

LETTERS

WHY WE NEED DISKS

If we send in programs, why do we have to send in a tape or disk and a printout? What about those of us who don't have any of this? Why can't we just jot the programs down on paper?

JOBEN CLANCY
Morrison, Tennessee

Dear Joben,

We've received tons of reader-written programs, and more keep coming every day! We just don't have enough computers or programmers to type them in. If you don't have a printer, or a tape or disk recorder, we suggest you contact your local users' group or school or borrow from a friend to gain access!

If you absolutely, positively can't get access to a printer or tape drive, we will consider a program that's 20 lines or less for our Compucopia section. Good enough?

THE EDITORS

K-POWER GETS A K-COCONUT

Photo: Gary Kane

Dear Readers,

It's not every day we get a coconut in the mail. But when K-NETTER *David Lee went to Hawaii, he mailed one to us. He didn't bother putting it in a box—he just scribbled a note on it, stuck on some stamps, and dropped it in the mail!*

THE EDITORS

LIKED THE *HACKERS* REVIEW

I'd been meaning to write you for a while, but the pace here has been kind of frenetic. . . . Anyway, I wanted you to know that your review of *Hackers* was my favorite of all the reviews given to the play. Glad you liked the show.

MIKE EISENBERG
Massachusetts Institute of Technology
Cambridge, Massachusetts

To Our Readers,

Mike Eisenberg wrote the Off-Broadway play, Hackers, *that* K-POWER *reviewed in the June issue. Mike sent the letter to contributing editor and resident theater critic, Alex Shakar, who wrote the review.*

THE EDITORS

HOW TO MAKE MONEY

I have a Commodore 64, and I have been thinking of using it to earn extra money. Could you give me your advice on this idea: I would like to learn how to word process and use that money to help others.

JOSEPH O'NEAL
New York, New York

Dear Joseph,

Sounds like a great idea! You'll probably want to pick up our next issue which will feature a giant article called "50 Ways to Make Money With Your Computer." It should answer most of your questions.

THE EDITORS

LOOKING FOR A PEN PAL?

I just wanted to write and say that I love your magazine, and I'm definitely going to get my subscription renewed. Also, I've finally thought of something that I'd like to see in every issue of K-POWER. It would be just great if you could have a section for pen pals. That way, people could write in and send in their address and a little bit about themselves, and all those computer lovers out there could share their programs and experiences!

KRISTY BARNES
Smithville, Arkansas

Dear Kristy,

You want it? You've got it! Last issue, we introduced the K-BASE, K-POWER's *own data base of computing kids. We're getting lots of letters from people who want computer pen pals. And, we want to help you find your perfect match.*

Just send us your name, age, sex, address, phone number, what computer you use, and what computing/programming level you're at (novice, intermediate, advanced, expert—include any programming languages you use). And tell us whether you want to hear from someone in a city or state near your own, or from someone far away. Also, let us know if you want to 1) communicate with someone at your own computing level, 2) help someone out who's just learning to compute/program, 3) get help from a more advanced K-POWER *reader. Write to us about any other special interests you have. Mail to* K-BASE, *c/o* K-POWER, *730 Broadway, New York, NY 10003. We'll do our best to connect you with somebody who has the same interests as you do!*

THE EDITORS

BETTER THAN BOOKS?

I have an Atari 800. I have programmed out of a lot of books, but your magazine is the best. You keep improving K-POWER with Compucopia, Microtones, and my favorite, K-BASE, which I think is your best idea yet!
P.S. I loved the *Bouncing Ball* and *Computer Blues* programs.

RICHIE DEAN, *14*
Vero Beach, Florida

BREAKDANCE.™
BREAKIN' MADE EASY.

The hottest craze in the U.S. this fall is Breakdancing, and you don't have to miss it. Now anyone can Breakdance. Just grab your joystick and control your Breakdancer in poppin, punking, stretching and breaking...all on your computer screen.

Breakdance, the game, includes an action game in which your dancer tries to break through a gang of Breakers descending on him, a "simon-like" game where your dancer has to duplicate the steps of the computer-controlled dancer and the free-dance segment where you develop your own dance routines and the computer plays them back for you to see.

Learn to Breakdance today! Epyx makes it easy!

One player; joystick controlled.

EPYX™ COMPUTER SOFTWARE

Strategy Games for the Action-Game Player

LOGON
L E T T E R S

THEY'RE TOO LONG!

My dad ordered K-POWER for me. I wish that there would be more miniprograms and not so many long ones.

DAVID HUGHEY, *13*
Merced, California

Dear David,

We're trying! That's why we introduced Compucopia, where we run the shortest programs we can get our hands on! And that's why we ran "Super Sounds" in Microtones last issue (September/October). So, keep an eye out for shorter programs in K-POWER*!*

THE EDITORS

CAN'T BEAR TO TEAR IT

I love K-POWER, but when I go to send in the contests you have, I have to either tear out the back page or copy it. I would rather not tear it out because of the information on the other side, and I'm not sure if you accept a copied contest page.

GINGER GRIBBLE, *13*
Fresno, California

Dear Ginger,

Tear no more! We accept photocopies or handwritten copies of our contests!

THE EDITORS

MAKING THE DIFFERENCE

I received an Atari 600XL for Christmas. I love my computer, but sometimes it's difficult to find software for it. The reason for this is that some Atari 400 and 800 programs don't work on the Atari 600XL. K-POWER is the only magazine that tells you if the Atari programs work on the 600XL. Some magazines don't say.... Then I have to find out if the program will work the hard way. I just wanted to thank you for caring enough to write 600XL above the programs that will work on my computer. Thank you!

CRAIG ROONEY, *14*
Jefferson City, Missouri

WE WANT TO HEAR FROM YOU!
Send your letters to LOGON, c/o K-POWER, 730 Broadway, New York, NY 10003. Or, if you're a CompuServe member, you can leave messages for K-POWER in care of E-Mail. Our number is 76703,673.

At Last . . . A Computer Show Where You're The Star

Announcing . . .

BITS&BYTESSM

The First National Computer Show For Kids

Disneyland Convention Center
Anaheim, California
November 30 - December 2, 1984

BITS & BYTES Is FUN . . . BITS & BYTES Is EXCITING . . . a "Hands-on" computer experience just for YOU (your parents and teachers will have a great time too!)

BITS & BYTES has everything from robots to computer music . . . SEE DISPLAYS from companies such as APPLE, IBM, COMMODORE, SIERRA, COLECO, SCHOLASTIC, RADIO SHACK, PEACHTREE, MINDSCAPE, DISNEY and may more.

HEAR . . . The "Kid Keynote" address "Is There Life After Joysticks"; The Bits & Bytes Whiz-Kid Panel; Meet special surprise celebrity guests.

LEARN . . . How to write your own computer games and software programs; How computers can help you with school work; "HANDS-ON" Programming workshops, and MUCH, MUCH MORE!

You may be the lucky winner of a **FREE COMPUTER!**

So Don't Wait . . . **CALL NOW** for complete information, **(818) 792-5111**

or write: **BITS & BYTES**, 87 N. Raymond Ave., Suite 305, Pasadena, CA 91103.

COMPUZINE
VOL. 1 NO. 8 NOVEMBER/DECEMBER

Edited by John Holmstrom

Prime-Time Programs

Staring at the same old computer games on your TV? Check out some prime-time computer shows! "Whiz Kids" and "Automan" may have disappeared, but "Airwolf," "Riptide," and "Knight Rider" are back. And if that's not enough, now there's "Streethawk," the hottest hardware on two wheels.

"Streethawk" (Mondays on ABC, 8 to 9 p.m. EST), stars Rex Smith as Jesse Mach, a daredevil motorcycle cop who's confined to desk work because of a crippling injury. When a research engineer for the Justice Department picks Jesse to "test pilot" a superbike they've developed, he becomes a silicon superman driving a machine known as Streethawk.

Streethawk, the superbike, can zoom from zero to 400 m.p.h. in no time flat with its hyperthrust, leap 30 feet straight up in the air, and even do backflips. The motorcycle's weapons system includes a torpedo bay that can be fitted for tear gas, a small machine gun, a weapon similar to a laser, and an infrared system that allows the bike to drive at night without headlights.

Photo: Courtesy ABC

Rex Smith is Streethawk, a daredevil motorcycle cop.

At NBC, "Knight Rider," the granddaddy of the computer shows, is back for its third season (Sundays, 8 to 9 p.m. EST). K.I.T.T. will get a new dashboard. The new dash will, among other things, dispense cash and food for Michael Knight (David Hasselhoff).

Also returning to NBC is "Riptide" (Tuesdays, 9 to 10 p.m. EST). Murray "Boz" Bozinsky (played by Thom Bray) will bring new computer technology to the show (like a portable Grid computer in a briefcase, with a built-in modem and a 5-inch screen).

"Riptide" 's computer consultant, Todd Grodnick, says they'll focus on accessing. "Computers are there to work for you," he says, "and the possibilities are endless. Boz uses computers in a positive way—and it's believable. Ninety percent of what we do on the show could really happen—or else the possibility is right around the corner."

CBS's "Airwolf" (Saturdays, 8 to 9 p.m. EST) is back, too. Stringfellow Hawke (played by Jan-Michael Vincent) still pilots the attack helicopter that can fly at supersonic speeds, defy radar, and has an incredible weapon system. The 'copter won't change much. But behind the screen, computers are making improvements.

Computer Graphics Director Kurt Borg says that a new vectorgraphic system will create special effects, such as explosions. "Now," he says, "we hope to create computer miniatures. And viewers won't be able to tell the difference. It will allow us to do things we can't do with models." —KATY KOONTZ

Computer Trivia

FLAW FINDERS! Two professors at the Tokyo Institute of Technology have developed a robotic snake that crawls through pipes and other narrow openings in machinery looking for defective parts.

FISH PICKERS AND CHICKEN PLUCKERS! Robot experts in Japan are hard at work developing a robot that separates fish according to species. Meanwhile, other technicians at Unimation in the U.S. are designing a robot that can pluck chickens!

BASIC FACT—The computer language BASIC stands for Beginner's All-Purpose Symbolic Instruction Code.

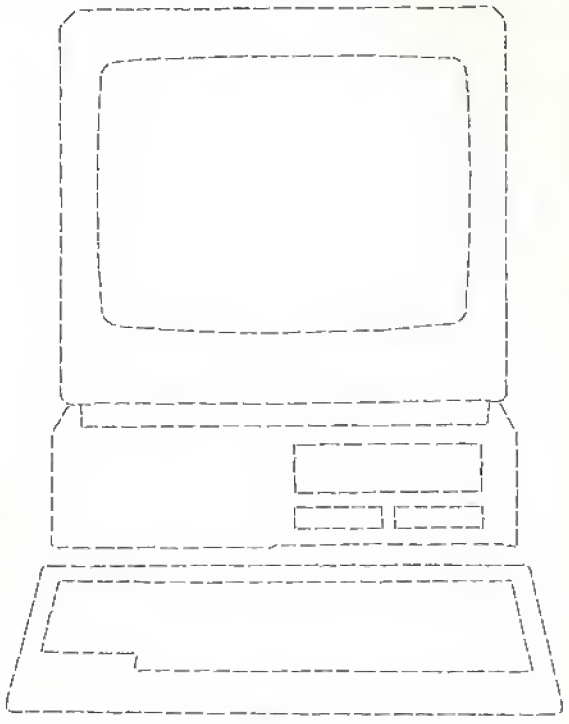
WHO IS IT? The voice of *Castle Wolfenstein* belongs to the game's designer, Silas Warner.

YOUNGEST SOFTWARE EXECS? In 1981, Nikolai Weaver and Steven Grimm started a software company called Plum Software with a program called *FileWriter*. Both boys were 11.

(Robot trivia from *The Robot Revolution* by Tom Logsdon, published by Simon & Schuster.)

Illustration: Howard Lewis

Picture a computer under $1000 that runs over 1000 of the best programs written for the IBM PC.



Now picture this.

There's a lot that's new about PC*jr* and it's all good news for you.

PC*jr* now has a lower price.

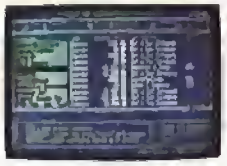
A new typewriter-style keyboard.

A new option that can give user memory a dramatic boost.

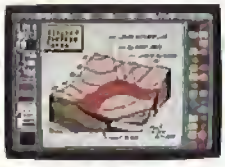
And new business and personal programs to add to its fast-growing library of up-to-date programs.

All of which can make PC*jr* the most useful computer a little money can buy.

Right now, PC*jr* can run the powerful Lotus 1-2-3™ on diskette (with Lotus 1-2-3 PC*jr* Installation Kit and additional memory). The new cartridge version, requiring no additional memory, will be available this fall.



Managing Your Money™ by Andrew Tobias, now on cartridge for PC*jr*, is a comprehensive personal financial advisor and manager.



Turn your screen into a canvas. The new cartridge program, PC*jr* ColorPaint, lets you create with the added dimension of color.

It comes standard with 128KB of user memory—twice the memory of its most popular competitor. An advanced 16-bit processor. And a double-sided diskette drive that can store over twice as much information as most single-sided drives.

With all these features, PC*jr* can run over a thousand of the most popular programs written for the IBM PC. And with the new optional 128KB Memory Expansion Attachment, it can run over a thousand more.

PC*jr* also runs a growing number of powerful cartridge programs. They work faster than diskettes, and don't take up a bit of user memory. The three newest examples being Lotus 1-2-3,™ the fascinating PC*jr* ColorPaint and Managing Your Money™ by financial expert Andrew Tobias.

As its library of software keeps growing, PC*jr* keeps growing, too. By leaps and bounds. Because IBM designed it with 13 ports for add-on options. And a modular construction that will accept new capabilities down the road. Even those that haven't been invented yet.

All this in a computer that weighs a mere 10 pounds.*

Takes up just a bit over a square foot of desk space. And costs less than $1,000†, without monitor.

Picture yourself with a PC*jr*. Try one out and see what's new at an authorized IBM PC*jr* dealer or IBM Product Center.

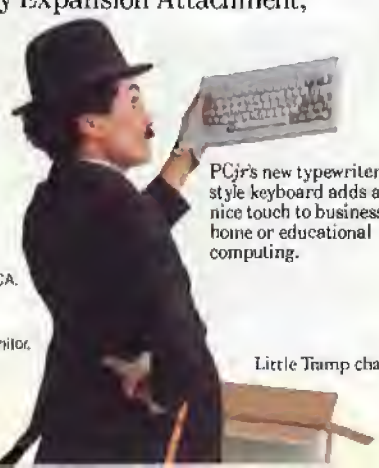
The new PC*jr* Memory Expansion Attachment can give memory a quick lift to 256KB. Or, along with a PC*jr* Power Expansion Attachment, all the way to a hefty 512KB.

More computer for your money.

See how PC*jr* compares with other computers at its price.

Memory User Memory (RAM): 128KB (expandable to 512KB) Permanent Memory (ROM): 64KB	**Software** Runs over 1,000 programs written for the IBM PC Runs both diskette and cartridge programs
Diskette Drive Double-sided, double density Capacity: 360KB	**Display** 40- and 80-column Resolution: 4-color: 640h x 200v 16-color: 320h x 200v
Processor 16-bit 8088	**Expandability** Open architecture Optional 128KB Memory Expansion Attachment(s) 13 ports for add-ons, including built-in serial interface
Keyboard Typewriter-style Detached; cordless	
Warranty 1-year limited warranty	

For the name of the store nearest you, call 1-800-IBM-PCJR. In Alaska and Hawaii, call 1-800-447-0890.



PC*jr*'s new typewriter-style keyboard adds a nice touch to business, home or educational computing.

IBM PC*jr*

Growing by leaps and bounds.

Managing Your Money is a trademark of MECA. 1-2-3 and Lotus are trademarks of Lotus Development Corporation.

*Weight does not include power pack and monitor.
†IBM Product Center price.

Little Tramp character licensed by Bubbles Inc., s.a.

COMPUZINE
VOL. 1 No. 8

Together Forever

With all the hoopla about good health these days, you'd expect some "expert" to uncover a deadly computer disease. We've heard the backache and eyestrain warnings. Now, some say monitors cause hearing problems! Well, here's a good word for computers from the world of medicine.

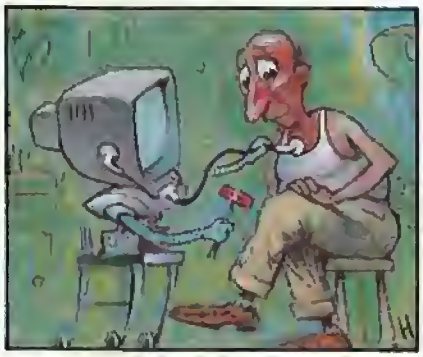
Saul Kent, an authority on life extension, says computers may lengthen your life. Kent is president of The Life Extension Foundation in Florida, and wrote a book called *The Life-Extension Revolution*. Both the center and the 465-page book focus on how to achieve good health and a long life. Kent predicts computers could add years to your life! Computerized medicine could conquer aging, disease, and death.

Here are some of Kent's predictions:

1. Miniature computer systems (either implanted into the body or applied externally) will provide drugs and nutrients to restore and maintain youth.

2. Delicate surgery will be controlled by computers. The ultimate surgery will be genetic engineering. Genes will be changed by reconstruction or by inserting gene fragments.

3. Computers will measure sickness and health. At the Michael Reese Medical Center in Chicago, a computer program has been able to prescribe treatment for hypertension about as well as a doctor could.



Illustrations: Howard Lewis

Who knows? Maybe tomorrow's computers could eliminate human physicians entirely! Eventually, we might plug our home computer into an electronic medical system and visit the doctor only for surgery or major tests.

—BERNADETTE GREY

Computerphobia

Do you know anyone who's afraid of computers? It's not uncommon. To some people, computers are more terrifying than a horror movie. To them, a computer keyboard is like a detonator.

These poor people have what psychologists call "computerphobia" (also known as cyberphobia). They panic when they get near a computer. They're afraid that pushing the wrong button will cause something terrible to happen, that the machine will explode or electrocute them.

"People with phobias are afraid of things that aren't particularly dangerous," says Dr. Martin N. Seif, a psychologist in New York City who cofounded the Phobia Resource Center.

Some computerphobics think of a computer as practically human. If it malfunctions, they'll say, "This computer is out to get me!" or "This computer won't work 'cause it knows I'm in a hurry." Others think they're all alone in a world that's computer-literate.

"The best way to cure computerphobia is to become familiar with a computer," says Dr. Seif. "When we don't understand something, we think the worst."

Student Bodies With Robot Arms

A robot company is lending a hand to schools. Actually, it's selling arms—robot arms. And these arms are giving students experience in handling robots.

Almost every large factory in the U.S. has been invaded by robot arms, so some schools are adding robots to their curriculum.

The arms, manufactured by Career Research Corp., are being used in junior high and high schools in New York, Utah, Louisiana, and Texas. Each arm comes with its own computer. Simple keyboard commands make the robot arm move almost like a human arm. Its three-fingered hand can lift up to one pound and has a 19-inch reach.

Besides making the arm move, robotics students learn to load and operate the program that controls the system.

—PAM HOROWITZ

NEW FROGGER® II THREEEDEEP!™

VIDEO & HOME COMPUTER GAME

BEYOND THE POND

Just when you thought it was safe to go back in the pond, here comes the new Frogger II ThreeeDeep!™

You'll need eyes in the back of your head, and on either side too, as you find yourself hopping in and out of three new, dangerous, and different worlds that go far beyond the pond of the original Frogger.

You'll have to think ahead to survive Underwater, On The Surface, and In The Sky.

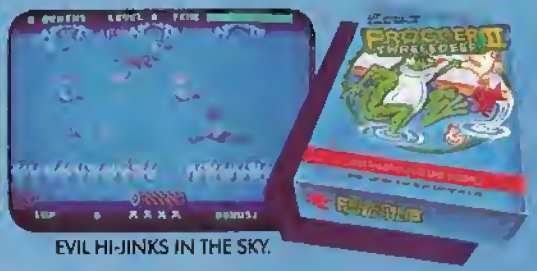
You've got to be quick to evade deadly, sneaky eels and fight strong currents underwater. And just when you think you've avoided the hippos' shake on the surface, you have to watch out for a persistent killer shark. Or you're gone.

And if you don't bounce high enough in the sky, a flying dragon named Clyde will zap you. Are you up to the challenge? Find out. New Frogger II ThreeeDeep!

Get hopping on it.

TREACHERY UNDERWATER*.

VILLAINY ON THE SURFACE.



EVIL HI-JINKS IN THE SKY.

Available for Atari® Home Computers, 2600™, 5200™, ColecoVision™ and Commodore 64™ Systems.

PARKER BROTHERS

*Atari 5200 graphics shown. FROGGER is a registered trademark of Sega Enterprises, Inc. FROGGER II Game graphics © 1984 Sega Enterprises, Inc. Atari, Atari 2600 and Atari 5200 are trademarks of Atari, Inc. Commodore 64 is a trademark of Commodore Business Machines, Inc. ColecoVision is a trademark of Coleco Industries, Inc. © 1984 Parker Brothers, Beverly, MA 01915

A Computer Beverly Hills

Ever wonder what it would be like to go to the biggest computer show in the world? Well, it's like a computer Beverly Hills—

Archon II: ADEPT.

famous computer people are all over the place. And the atmosphere is electric!

Twice a year, computer and electronics companies attend a giant event called the CES (Consumer Electronics Show). Here are some show highlights from K-POWER contributors David Lee, 14, and Kim Guzeman, 14—two of the few young people allowed into the show.

David: The first thing I did during my day at CES was interview Jon Freeman and Anne Westfall from Electronic Arts. They were promoting *Archon II: ADEPT*. *ADEPT* is superb. It's a lot different from the original. First, there's no chessboard. Instead, the action takes place on one of the four elements—air, fire, water, or earth. Each element increases or decreases the power of the creatures.

I also went to the HesWare booth and saw *Space Station, Cell Defense*, and *Life Force*. Tom Wahl, who worked on *Cell Defense*, showed me around the booth. Kids who like making models of spacecraft and satellites will love *Space Station*. In this game, you pick out parts (like engines, robot arms, etc.), and put together your own spacecraft. You can add accessories to your craft, and you make up your own adventures. You can even resign (but you must go to the White House to do it!).

To end my day, I went to a party thrown by K-POWER and FAMILY COMPUTING at Chicago's Second City Night Club. A bunch of comedians made jokes about computers.

Photo: J. B. Spector

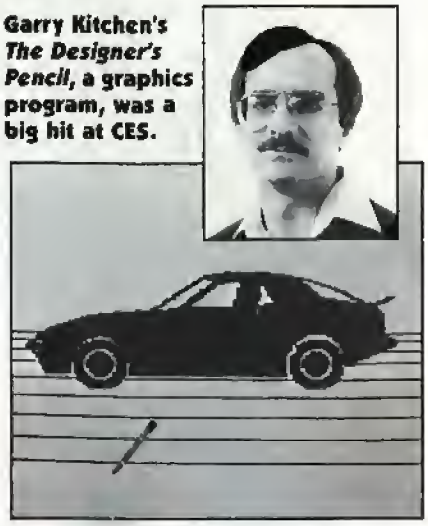
A scene from Second City's computer comedy show.

***Breakdance* from Epyx, one of the many hip-hop programs.**

Kim: Broderbund had something new for everyone at CES. For *Lode Runner* addicts, they had *Championship Lode Runner*. For others, they had *Karateki* (a new karate game), *Castles of Dr. Creep, Raid on Bungeling Bay*, and *Captain Goodnight and the Islands of Fear*.

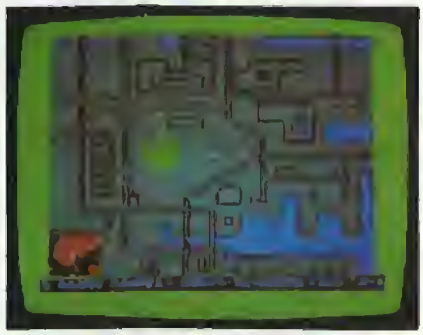
For all you breakdancing hackers, Screenplay and Epyx brought out two games just for you! The companies hired breakdancers to help promote the games. The object is to imitate your opponents' "moves."

Garry Kitchen's *The Designer's Pencil*, a graphics program, was a big hit at CES.



I met designer Garry Kitchen at the Activision booth. He's the creator of *The Designer's Pencil*, by Activision. It's a graphics utility that lets you draw stuff without a touchpad or the keyboard (and sort of teaches you programming at the same time). Garry told me the software lets you "dump to a printer," which means you can print out copies of your creations. *Pencil* works on a new language Garry dreamed up. It's a kind of mixture of BASIC and assembly; he calls it "pencil language."

There was lots more. David and Kim mentioned some of the new stuff at CES. But if they didn't talk about a game or product from your favorite company, don't worry. It'll be out soon!



Broderbund's *Raid on Bungeling Bay*.

Mr. Do!'s Castle™

Video & Home Computer Game

THERE'S NOT A SECOND TO CLOWN AROUND!

It's do! Or doom! For Mr. Do! The wacky, hammer-slappy clown under siege in Mr. Do!'s Castle™ home video game.

Mr. Do! is back from the arcade. And now he's in his castle about to become a fast food lunch for voraciously clever unicorns. Doing them in or escaping takes all the split-second ingenuity Mr. Do!'s got. Like when to use his trusty hammer or his fast little feet.

Can he do it? It'll take all you can do to help him! But hurry, you haven't got a second to lose.

ColecoVision graphics shown.

Available for Atari® Home Computers, 2600™, 5200™, ColecoVision™ and Commodore 64™ Systems.

®PARKER BROTHERS

MR. DO!'S CASTLE is a trademark of Universal USA, Inc. MR. DO!'S CASTLE game graphics © 1984 Universal USA, Inc. Atari, Atari 2600 and Atari 5200 are trademerks of Atari, Inc. ColecoVision is e trademark of Coleco Industries, Inc. Commodore 64 is a trademark of Commodore Business Mechines, Inc. © 1984 Parker Brothers, Beverly, MA 01915.

SILICON ALLEY

Ready for the Hottest Scoops From the Valley?

BITS & BYTES! That's the name of the first-ever computer show for kids! It premieres at the Disneyland Convention Center in Anaheim, California, November 30 through December 2. Besides showing off all the latest computer hardware and software, the convention will feature panel discussions with computer celebrities like Jeffrey Jacquet (from the "Whiz Kids" TV show). Similar shows are being planned for Dallas and Boston in 1985. Want more info? Call (818) 792-5111....

WHAT'S NEW? *CUTTHROATS*—from Infocom. Mike Berlyn, author of *Suspended* and *Infidel*, wrote it. Along with the game, you get a special book (*Four Shipwrecks off Hardscrabble Island*), a map and an Outfitter's International price list....

HITCHHIKER'S GUIDE! The computer game based on *The Hitchhiker's Guide To The Galaxy* will be out soon! Steve Meretzky (*Planetfall*) worked with *Hitchhiker* author Douglas Adams on this original text adventure game. It'll be out in November....

MORE COMPUTER CONTESTS! Right after our computer contest story came out last issue, we heard about some more computer contests. First, there's the *Agent USA* contest. Send a proof of purchase sticker from *Agent USA*, attached to a card saying what you like most about the game. The Grand Prize is a trip to Washington, D.C. on Amtrak. Then there's the *Bannercatch* Win Your Own Robots contest. Defeat the robots in the computer game *Bannercatch* and a message will appear. Send in the message, along with why you like the game, and you may win a pair of robots! Mail entries to: Scholastic Software, *Agent USA* (or *Bannercatch*) Contest, Dept. EW, 730 Broadway, New York, NY 10003....

Play *Agent USA* and win a trip to Washington, D.C.!

SCROLLING IN DOUGH

Making It in the Magazine Biz

By Jeffrey Swartz and Lon Stucky

Last December, Lon Stucky and I started a small newsletter for Timex Sinclair users. It bombed. We dropped the idea and decided to forget about the magazine business.

Lon and Jeffrey edit and circulate their own computer magazine.

Then Lon had an idea. "Let's make a computer magazine for *all* the popular computers," he suggested.

I thought that was an OK idea. We set out to name our magazine the next day. I called out a bunch of dumb names and Lon kept saying "Nah." When I called out "Pixel," Lon said, "Yeah, that's it!"

We got right to work. We wrote a main article and developed all the other regular sections a magazine has. Then we started typing. (You should have seen all the typing errors in the first issue!!) Lon's mom was nice enough to run off about 20 copies for us.

We couldn't believe how enthused our teachers were about *Pixel*. Our English teacher even took one to her computer class. Everyone said *Pixel* was worth more than the 25 cents we were asking. So we raised the price to 75 cents! And the teachers and kids in our school are still buying out the 20 copies we make of each issue.

We've run into our share of problems. We were late getting out the second issue and fell a month behind schedule. Other times, we had no way to copy *Pixel*, ran out of paper, or just felt like quitting. But we pushed.

It's hard for two 14-year-old ninth-graders to make a magazine, but we're doing it. We sometimes work on the magazine together after school, and when we're done, we spend the whole day typing it. We're not a national magazine, but we'll do the best we can to get there.

LON STUCKY *and* JEFFREY SWARTZ *live in Wagener, South Carolina.*

CAN YOU PEDAL FAST ENOUGH TO WIN THE GREAT MANCOPTER™ RACE?

Can you pedal fast enough to keep your human-powered copter up in the air?

Can you dodge blade-biting birds, strange swamp creatures and dastardly villains?

Can you keep your copter from falling into the mouths of hungry sharks and giant squids?

Can you fly through treacherous mangroves and lightning storms?

Can you take all this fun and frustration?

Then you're ready for the great Mancopter race.

For Commodore 64, Atari and IBM PC & PC/JR systems.

Premier Arcades™

Datasoft®

WE CHALLENGE YOU.

Datasoft® is a registered trademark of Datasoft, Inc.™
Premier Arcades™ is a trademark of Datasoft, Inc. © 1984
Mancopter™ is a trademark of Nichibutsu, USA © 1984
© 1984 Datasoft, Inc.

Datasoft, Inc., 19808 Nordhoff Place,
Chatsworth, CA 91311 • Phone (818) 701-5161

DOCTOR KURSOR'S KLINIC

Illustration: Sam Viviano

Is anyone still supporting Timex computers?

DR. KURSOR: Though it isn't making computers anymore, Timex Computer Corp. (19 Adams Field, Little Rock, AR 72209; [501] 370-6536) will still fix any of its computers, peripherals, or software, even if no longer covered by warranty.

Dave Higginbottom (10614 Roseton Ave., Santa Fe Springs, CA 90670; [213] 864-7068) is a good source of Timex info. He's trying to pull companies that support Timex together to sell a new 2068-type computer.

You can buy just about any Timex product—computers, peripherals, software, books—from E. Arthur Brown Co. (3404 Pawnee Drive, Alexandria, MN 56308; [612] 762-8847) or TEJ Computer Products (859 N. Virgil St., Los Angeles, CA 90029; [213] 665-5111).

Rick Duncan, publisher of *T-S Horizons* (2002 Summit St., Portsmouth, OH 45662; $15/year), can tell you the address of the Timex users' group nearest you.

The April 1984 issue of *Syntax* (RD2, Box 457, Harvard, MA 01451; [617] 456-3661; $48/year; back issues $5 each), a newsletter for Timex owners, lists more than 100 companies still selling peripherals and software for Timex computers.

And K-POWER still publishes Timex programs regularly!

What are QWERTY and Dvorak keyboards?

DR. KURSOR: The keyboard is the one part of your computer that was purposely designed to be *inefficient.*

The keys on most computers are arranged much like a typewriter's. If you look at the first six letters in the top row of alphabet keys (right below the number keys), you'll see why it's called a "QWERTY" layout.

Typewriter keyboards weren't always designed this way. Back in the late 1800s, several different layouts were in use (just as with computers nowadays, there was little standardization). Some of these early keyboard layouts were very efficient; people could type on them fast enough to jam the mechanism. So the QWERTY layout was developed—to slow those typists down!

The QWERTY system places the most-used letters of the alphabet on separate rows of the keyboard or puts them under the weaker fingers. Even so, one woman reached a speed of 170 words per minute on a QWERTY keyboard.

About 50 years ago, a man named August Dvorak (pronounced Da-VŌ-rak) patented an alternative keyboard. He claimed it would increase efficiency and reduce fatigue. The Dvorak keyboard has the most-used letters of the alphabet on the center row of keys, where they can be reached easily. One typist trained in the Dvorak system has reached a speed of 200 words per minute.

Unfortunately, the Dvorak system never really caught on in the typewriter world.

Now, computers are offering the Dvorak keyboard a new lease on life. Changing a computer from one system to the other is fairly easy, and some computer manufacturers are offering the more efficient Dvorak keyboard as an option. The new Apple IIc has a switch that converts its keyboard back and forth between the two.

Need an answer to a hi-tech question?
Ask Dr. Kursor. Send your toughest questions to Dr. Kursor's Klinic, c/o K-POWER, 730 Broadway, New York, NY 10003.

CAN FLYING FEET AND FISTS CONQUER THE EVIL WIZARD'S FORTRESS?

What's it like to have the lightning feet and fatal fists of Bruce Lee?

You'll find out in this death-defying game.

You have to kick, slash and punch your way through an array of deadly chambers. Where the brutal Green Yamo, terrible Ninja, exploding bushes and other dangers lurk.

Even if you survive all that, the Evil Wizard is waiting to do you in with an arsenal of flaming fireballs.

Destroy him and his fortune is yours.

Now, have you got what it takes to play Bruce Lee?

For Commodore 64, Apple II, Atari and IBM PC & PC/JR systems.

FAMOUS FACES™

Datasoft®

WE CHALLENGE YOU.

Datasoft, Inc., 19808 Nordhoff Place, Chatsworth, CA 91311 • Phone (818) 701-5161

Datasoft® is a registered trademark of Datasoft, Inc.® Famous Faces™ is a trademark of Datasoft, Inc.® 1984. Bruce Lee™ is a trademark of Linda Lee. © Bruce Lee 1984, all rights reserved. © 1984 Datasoft, Inc.

Plug into K-NET each issue for what's new with K-POWER's national network

K-NET™

Plus, catch up on hot networking news and new products

How To Battle On-Line Frustration

Photo: Randy Wood/ Picture Group

Tom Peterson, 15
Vancouver, Washington

Photo: Robert Flishel/ Picture Group

Jodi Moskowitz, 12
Scott Moskowitz, 10
Toledo, Ohio

Photo: Joen Youmans/ Picture Group

Rodney McCalla, 13
Pratt, Kansas

Photo: Jonathon Utz/ Picture Group

Jill Bassett, 13
Miami, Florida

Photo: Steve Wort/ Picture Group

Eric Fisch, 15
St. Paul, Minnesota

If you're into networking at all, you probably have learned firsthand the joys and frustrations of hooking up. K-POWER's K-NETTERs are learning the networking ropes. They flip a couple of switches, boot their software--and telecommunicate away!! With a little practice and the right equipment, logging on is a breeze. But some brave K-NETTERs admitted going on-line for the first time wasn't as easy as it appeared. Here they tell us about their phone problems, sibling problems, money problems--and how they solved them.

(TOM PETERSON) Using the system is like learning a foreign language. It's taken a lot of time to read through all the pages of documentation. I resorted to the trial-and-error method of learning, but soon discovered this was a mistake. Despite the innumerable frustrations, it's been really fun.

(DAVID LEE) I had to have patience--lots of it--because my dad had to buy phone equipment. When I made my first call, I was so excited!!! (But my wallet wasn't.)

It's really fun to talk to other people through the computer even though you have to wait. I recommend a separate phone line. Once I was telecommunicating with someone too

Photo: Martha Leonard/ Picture Group

Tom Spindler, 12
Park Ridge, Illinois

Photo: Rich Browne/ Picture Group

Stephen Sakach, 14
Suzanne Sakach, 11
Dana Point, California

Photo: Joel Bronz

Steve Horowitz, 17
Dan Horowitz, 15
Westport, Connecticut

Photo: Tony O'Brien/ Picture Group

Eric Saberhagen, 14
Tom Saberhagen, 12
Albuquerque, New Mexico

Photo: Nik Kleinberg/ Picture Group

Dara Cook, 10
Tuckahoe, New York

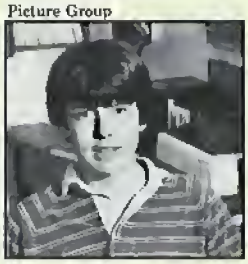
Photo: Jeff Amberg/ Picture Group

Brian Keadle, 14
Perry, South Carolina

Photo: Joe Cavaretta

Jo Anne Sanchez, 13
El Paso, Texas

Photo: Rick Browne/ Picture Group

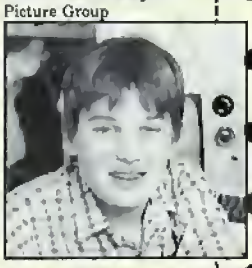


Peter Green, 16
Cupertino, California

Photo: Louie Favorite/ Picture Group

Angie Lewis, 13
Griffin, Georgia

Photo: John Hillery/ Picture Group



Chris Pawlak, 14
Troy, Michigan

long, and I missed an important call!!

(JO ANNE SANCHEZ) For starters, the phone cable wasn't long enough to reach both the phone jack and the modem. I had to rearrange the whole computer room (my bedroom) in order to make it reach. One big problem was the phone itself. I was disconnected by other people phoning in. Or if I wanted to log on, my sister Chris would be on the phone. I still haven't conquered that problem and probably never will!!

(BRIAN KEADLE) I didn't have many problems hooking up. I did have another problem recently. CompuServe changed its local telephone number without telling me! It was three days before I found out they had done it.

(PETER GREEN) I guess the main problem I had was the only phone available had call waiting and was nowhere near the computer. We resolved this by installing a new line (mega-bucks) next to the Apple. The money it cost to have a new line installed was definitely worth it!!

(ANGIE LEWIS) One time when I typed in my I.D. number they said something like, WE ARE TEMPORARILY UNABLE TO ANSWER YOUR REQUEST. So I just came on through a different access number. No sweat!! It is a little bit of trouble having my sister yell at me for being on the phone too long but she gets over it!

Networking News

TUNE IN DAVID LEE... K-NET's karate-lovin' David Lee hit the Chicago air waves in September with his own radio show segment. David, 13, from Elmhurst, Illinois, hosts a weekly segment about computers on WBEZ Radio's "The Question Show." Look out Casey Kasem, 'cause David Lee has K power!

Photo: Richard Derk/ Picture Group

NEW MODEM FOR 64s... Got a Commodore 64 and $99? Plunge into the world of telecommunications with this 300-baud modem and accompanying software. The half- or full-duplex modem, the 6420, has automatic dial and redial, originate or answer mode, and a voice/data switch. Westridge Communications, Inc., 330 Washington St., Marina Del Rey, CA 90291; (213) 306-4103.

KID'S ELECTRONIC HANGOUT... The Kid's Message System, a San Diego-based bulletin board, is swamped with messages and it gets more popular all the time. Some members think chatting on-line beats gabbing on the phone!

The bulletin board has received 24,000 calls since last February, and 21,000 messages have been left on it. Most members of the free bulletin board system (BBS) are just a toll call away.

Both on-line and off-line friendships have developed. Lee and Darlene Tydlaska, the board's sysops (systems operators) threw a pool party for members of the Kid's Message System. Says Darlene, a school teacher, "Kids compare schools and pets, or talk about their hobbies. A lot of on-line romances have blossomed on the board."

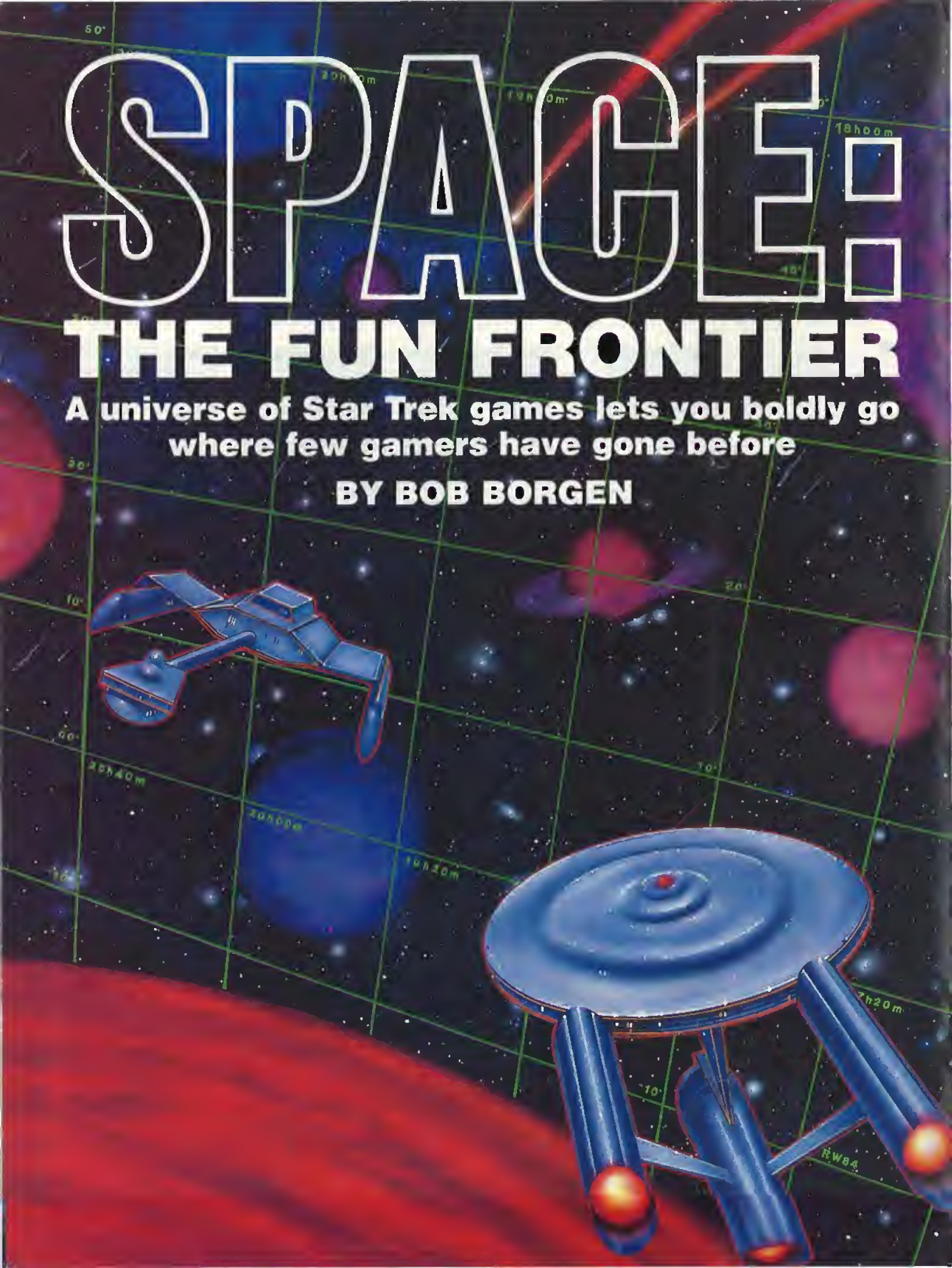
The Kid's Message System can be accessed 24 hours a day/seven days a week by calling: (619) 578-2646.

K-NET modems supplied by Anchor Automation

SPACE: THE FUN FRONTIER

A universe of Star Trek games lets you boldly go where few gamers have gone before

BY BOB BORGEN



Imagine being in Captain Kirk's boots. Sure, Sulu and Scotty make competent lieutenants, but the *U.S.S. Enterprise* is no tugboat. Keeping track of the shields, stocks of weaponry, food, and other supplies requires timing and organization, not to mention fighting abilities. If you've ever wondered what space travel is like, try your hand at the slew of computer games that put *you* in the commander's seat.

These aren't just arcade games. Though many do demand hand-eye finesse, you have to show your stuff in the brains department, too. After all, Kirk had more to worry about than the trigger button.

As the commander of a large space vessel, you'll have to worry about your store of resources—sometimes for a whole crew. Using high-tech weaponry, like photon torpedoes or phasers, you'll home in on a host of alien aggressors. For protection you'll rely on top-notch deflector shields. With a ship full of fancy gadgetry at your fingertips, you'll venture forth, warping from planet to planet, charting the far reaches of space—that final frontier.

AT THE HELM...

The best Star Trek game with a heavy arcade angle was one of the earliest games designed for the Atari. In 1980, Atari introduced *Star Raiders* at the same time it launched the 400 and 800 computers. The computers have since been replaced, but the game still hasn't found an equal.

Star Raiders puts you at the helm of a starship. After learning to control it, you travel around the galaxy seeking and destroying enemy Zylons while protecting friendly starbases.

Between fast and frantic arcade-style shoot-outs (much like the battles in the movie *Star Wars*), you regularly visit starbases to re-energize and repair your ship. Whether you're fighting it out with Zylons, traveling through a hyperwarp, or attempting a tricky docking maneuver at a starbase, the game has a 3-D feel unmatched by most computer games.

For action that hits a little closer to home, take a shot at *Titan Empire*, from Muse. This strategic action space battle takes place in our very own solar system. In the scenario, all nine planets in our system (plus 21 major moons) have been colonized. But the evil inhabitants of Titan (one of Saturn's moons) have started to take over friendly territory.

As commander of a starship traveling through the solar system, you battle enemies in space and recapture enemy moons and planets. *Titan Empire*'s best feature is its display screen which shows where your ship is among the nine planets slowly orbiting the sun. The planets move realistically, orbiting the sun at different speeds. That means you have to plan your strategy carefully, moving to enemy bases when they're close to you. With 30 celestial bodies in the system, you'll have your hands full as you battle, fuel up, beam armies to and from planets, and travel to the next hot spot.

KEEPING BALANCE

If you're a serious gamer in love with ship-to-ship combat, S.S.I.'s *The Cosmic Balance*, with its six scenarios, is for you. A series of tactical battles in deep space, the game gives you more decision-making power than Captain Kirk ever had. You can even start from scratch and design your own ship, taking into account such variables as size, speed, and living space.

This is complicated and difficult at first. But once everything's assembled, your ships can be saved for future battles. You can buy a *Cosmic Balance Shipyard Disk* (from *Computer Gaming World* magazine), which contains 26 different battleworthy ships.

After constructing your vessel, carefully plot each move and decision. Then watch as the computer plays out the battles.

If you like the intricate detail of *The Cosmic Balance*, you can try out the sequel module. *Cosmic Balance II* (also from S.S.I.) is a strategic game that follows the human race as it expands out into the galaxy. As you and your opponent explore and colonize the 40 planets, your empires expand and begin to clash over territory. Switch back to *The Cosmic Balance* and fight it out in ship-to-ship combat, taking on either computerized or human opponents.

Beginners beware of these S.S.I. selections. They're tough, even for serious gamers. You'll find yourself swept up in this galactic empire for many stardates to come.

EVERYTHING BUT THE TRIBBLES

Stellar Defense, from Rainbow Computing, comes closest to capturing the feel of the TV series. *You* command the *Enterprise*. Your mission: to defend a 64-quadrant confederation.

Stellar Defense

Illustration: Roy Weimann

A starchart shows the location of all bases, enemy installations, and stars. Keep track of your position using the tactical display, a short-range scan of your position in the quadrant and obstacles such as different types of bases and enemy ships. Receive messages from Starfleet Headquarters on the intra-space radio. It's as if there's really someone at the other end of your terminal.

Stellar Defense also has planetary adventures where you're beamed or shuttled down to some planets' surfaces in search of rare "trilithium" crystals. (They can improve your ship's energy usage.) For casual gamers looking to relive the intergalactic excitement of "Star Trek," *Stellar Defense* has everything but the "tribbles."

Titan Empire

STAR TREK COUSINS

Star Trek isn't the only "universe" in sci-fi computer games. There's a fleet of other great games in which you'll tackle detailed and complex worlds that *aren't* related to Trek.

For instance, Avalon Hill's *Jupiter Mission 1999* is a space adventure with 11 different challenges on four separate disks. Make it through puzzle and arcade sequences on your solitary spaceship mission to an asteroid belt. Destroy the asteroids in your path, repair and fly your ship, navigate special landing craft, and explore alien bases—in a series of adventures that may take you months to finish.

One of the most detailed game universes can be found in *Reach for the Stars*. You and up to three other players are each responsible for the survival of a race in a hostile space environment. You have to figure out problems, such as what's more important: economic growth or the need to maintain offensive and defensive forces? As you'd expect, this simulation of planetary exploration, colonization, and expansion is really involved. Dedicated gamers should jump at this chance to play empire builder.

If you're after a tough challenge that requires hi-res imagination instead of graphics or arcade skills, check out Infocom's *Starcross* or *Planetfall*, two all-text science-fiction adventures.

In *Starcross*, you're a miner for black holes who discovers a gigantic ship passing through space. Explore the spaceship and figure out its mission. In *Planetfall*, you and a robot sidekick (with a unique personality) travel around a deserted, alien world, trying to solve a great mystery.

So if you're tired of watching Captain Kirk have all the fun, sit back, engage thrusters, and warp into a galaxy of enthralling Star Trek games. **k**

BOB BORGEN *is a Trekkie from way back. He's written for other computer magazines including* Electronic Fun With Computers and Games.

THE 'STARS' CHART

THE COSMIC BALANCE* and *COSMIC BALANCE II
Apple and Atari, 48K (disk). Strategic Simulations, Inc.; (415) 964-1353. $39.95 each.

COSMIC BALANCE SHIPYARD DISK
Apple and Atari, 48K (disk). Computer Gaming World; (714) 776-4979. $15.

JUPITER MISSION 1999
Atari, 48K (disk); BASIC cartridge. The Avalon Hill Game Co.; (301) 254-5300. $50.

REACH FOR THE STARS
Apple, 48K (disk). Strategic Studies Group. U.S. distribution by The Armory; (301) 764-8100. $59.95.

STAR RAIDERS
Atari, 16K (cartridge). Atari, Inc.; (408) 745-4851. $44.95.

STARCROSS* and *PLANETFALL
Apple and Atari, 32K (disk); Commodore 64 (disk); IBM PC, 48K (disk); TRS-80 Models I/III, 32K (disk). Infocom; (617) 492-1031. $39.95 (*Starcross*); $49.95 (*Planetfall*).

STELLAR DEFENSE
Apple, 48K (disk). Rainbow Computing; (800) 423-5441. $49.95.

TITAN EMPIRE
Apple, 48K (disk). Muse Software; (301) 659-7212. $39.95.

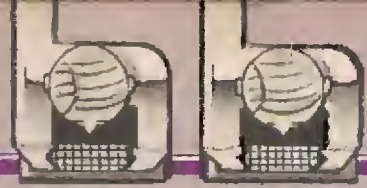
Illustration: Charis Reed

HACKER HEAVEN

NOVEMBER/DECEMBER

PROGRAMS Page 26 *Word Twister* winners! Palindromes! Martians! Mozart! And a Drumulator?	**PIXEL THAT!** Page 32 Graphics programs for Apple, Atari, CoCo, and IBM. Learn to fly!
COMPUCOPIA Page 35 Short short programs: Encoder/Decoder Contest winners!	**MICROTONES** Page 37 *Musical Stings* for ADAM, Apple, Atari, CoCo, Commodore, and TI!

Illustration: Jim Cherry III



P R O G R A M S

Computer generated by the computer generation

WINNERS OF THE *WORD TWISTER* CHALLENGE

Here's a sample puzzle from John Nguyen's winning *Word Twister* program. Can you find the six computer words and terms hidden within?

							F	S	I	S	E	H	K	V	O	Z	C
							I	T	Y	S	U	E	U	P	D	G	F
O	G	A	R	M	H	S	Y	S	T	E	M	P	D	V	O	B	H
N	P	V	W	Q	A	F	J	E	P	A	T	Z	I	D	O	C	G
S	J	F	U	X	E	R	P	Z	T	B	H	B	R	T	W	Z	C
O	L	L	F	J	U	T	G	O	M	Q	S	A	Y	U	A	O	Z
L	P	X	S	X	T	R	Z	O	J	R	O	G	C	F	T	V	N
E	V	U	Q	A	F	O	Y	K	R	B	R	H	U	L	A	B	O
N	M	U	Y	W	E	M	F	R	Y	P	Q	A	C	Y	D	O	O
L	P	E	S	T	B	Y	Z	E	U	T	W	H	M	D	F	Y	J
C	C	X	W	Z	L	O	K	K	J	E	C	H	O	O	C	P	E
C	E	D	O	G	L	K	X	L	D	I	S	K	B	G	X	E	X
C	W	P	V	H	X	J	N	F	W	O	J	W	L	Q	I	L	I

You think word search puzzles are tough? Well, imagine designing a program that *creates* them!

That's just what our readers did when we challenged them to top the word search generator we ran in our February issue (*Word Twister*, page 54). Our mailroom has been flooded with word twisters of every description and sophistication level ever since.

Of all the word twisters we received, one really stands out. Sixteen-year-old John Nguyen of Louisville, Kentucky, created a word twister to beat all word twisters. It has a musical intro. It has 11 skill levels. It has a scrolling screen. It even highlights found words. All in all, an amazing programming feat. A whopping 400 lines, too!

For all his time and effort, John will receive a new Timex Sinclair 2068, a one-year subscription to K-POWER, and a dashing K-POWER T-shirt. Congratulations, John!

The following programmers also submitted top-notch word twisters. Their programs kept the K-POWER technical staff untwisting words for months. In recognition of the many hours they spent programming, K-POWER is mailing each of them a shiny new Timex Sinclair 2068.

Chia-Chi Chao, 17
Moraga, California

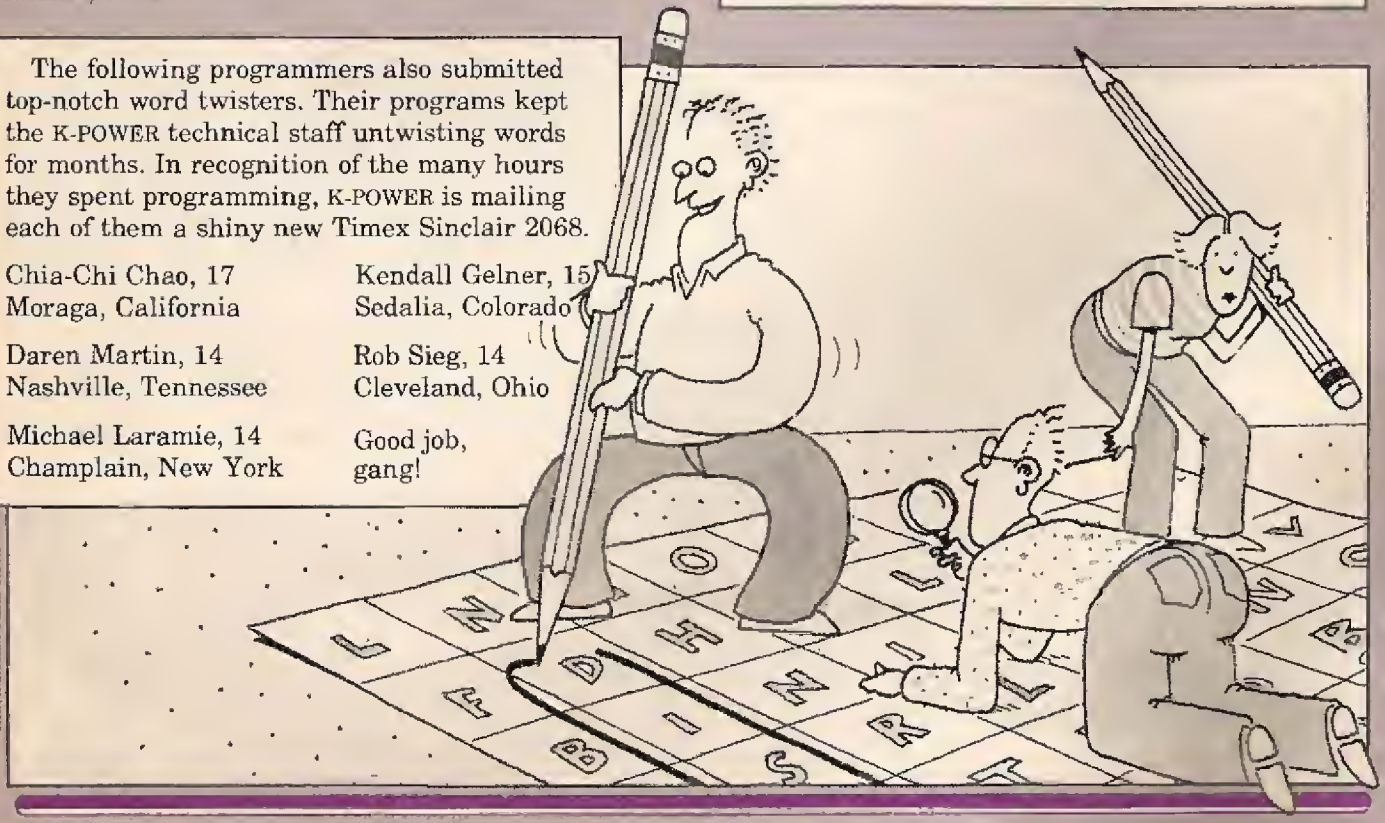
Daren Martin, 14
Nashville, Tennessee

Michael Laramie, 14
Champlain, New York

Kendall Gelner, 15
Sedalia, Colorado

Rob Sieg, 14
Cleveland, Ohio

Good job, gang!



Illustrations: Chris Reed

Palindrome Construction Kit

By Shahzad Chowdry

If you examine the accompanying art, you'll see that each drawing depicts a palindrome. (Palindromes are sentences or phrases that read the same way forwards and backwards.) Pretty clever, huh?

As you might imagine, palindromes are very tough to make. But with a little help from the *Palindrome Construction Kit,* you'll be palindroming in no time. It's easy. The programs below will do half the work for you. All you have to do is type in a group of words you think will create that same group of words when spelled backwards. (The spaces and punctuation might not be in the same places when read backwards, but that's OK.) Below the words you type will appear the same words spelled backwards.

Here's an example: Take the word "step," for instance. Backwards it spells "pets." So, on your computer screen, you'll see STEP/PETS. That's not quite a palindrome yet because it doesn't mean anything. But say you add another word. "On," for example. Your screen will then display STEP ON/NO PETS. See, now *that's* a palindrome. You could just imagine a pet shop with a sign on the wall reading "STEP ON NO PETS."

In the old days, only the very clever were capable of dreaming up these witty little phrases. Now, with a little help from high technology, you can create palindromes along with the best of them.

SHAHZAD CHOWDRY, *16, works as an "applications programmer" for an electronics corporation near his home in San Jose, California.*

A MAN, A PLAN, A CANAL, PANAMA.

COLECO/PALINDROME CONSTRUCTION KIT

ADAM • 80K RAM

```
10 HOME:p1 = 1:i = 0:s1$ = "  ":s2$ = "  "
20 HTAB 5:VTAB 2:PRINT "Palindrome emordnilaP":PRINT T
AB(3);"Construction noitcurtsnoC":PRINT TAB(12);"Set t
eS"
30 PRINT:PRINT "Type in text at cursor.":PRINT "To edi
t, use ..."
40 PRINT:PRINT "CONTROL-D to delete text to":PRINT TAB
(11);"right of cursor;"
50 PRINT:PRINT "CONTROL-N to enter insert mode."
60 PRINT:PRINT TAB(5);"Press any key to begin."
70 GET k$:HOME
80 l = LEN(s1$)
90 p2 = l-p1:q = p1:GOSUB 1000
100 PRINT RIGHT$(s1$,p2+1)
110 VTAB 12:HTAB 2:PRINT s2$
120 q = p2+341:GOSUB 1000:INVERSE:PRINT MID$(s2$,p2,1)
;:NORMAL
130 q = p1+1:GOSUB 1000:GET k$
140 q = p2+341:GOSUB 1000:PRINT MID$(s2$,p2,1);
150 k = ASC(k$):IF k = 3 THEN STOP
160 IF l > 254 AND k <> 4 AND k <> 161 AND k <> 163 TH
EN 120
170 IF k = 14 THEN i = 1:GOTO 120
180 IF k = 4 THEN i = 0:k$ = "":GOTO 210
190 IF k = 161 OR k = 163 THEN i = 0:p1 = p1-(k = 163
AND p1 > 1)+(k = 161 AND p1 < l-1):GOTO 90
200 IF k < 32 OR k > 122 THEN 120
210 lm = l-((k = 4 OR i = 0) AND p1 < l-1)
220 s1$ = LEFT$(s1$,p1)+k$+RIGHT$(s1$,lm-p1):s2$ = LEF
T$(s2$,lm-p1)+k$+RIGHT$(s2$,p1)
230 p1 = p1+(k<>4):GOTO 80
1000 v = INT(q/31)+1:VTAB v:HTAB q-v*31+32:RETURN
```

RADIO SHACK/*PALINDROME CONSTRUCTION KIT*

TRS-80 Model III • 16K RAM

```
10 CLEAR 2000:CLS:P1=1:D=10:I=0:ST=15360:S1$="  ":S2$=
"  "
20 PRINT@276,"PALINDROME EMORDNILAP":PRINT@334,"CONSTR
UCTION SET TES NOITCURTSNOC":PRINT
30 PRINT "TYPE IN TEXT AT CURSOR. ARROW KEYS MOVE CURS
OR LEFT AND RIGHT."
40 PRINT "TO EDIT, USE ...":PRINT:PRINT "<LEFT SHIFT>/
<DOWN ARROW>/<D> TO DELETE TEXT TO RIGHT OF CURSOR;";:
PRINT "<LEFT SHIFT>/<DOWN ARROW>/<N> TO ENTER INSERT M
ODE."
50 PRINT:PRINT TAB(18);"PRESS ANY KEY TO BEGIN."
60 K$=INKEY$:IF K$="" THEN 60 ELSE CLS
70 L=LEN(S1$)
80 P2=L-P1:CR=-1
90 PRINT@P1-1,RIGHT$(S1$,P2+1):PRINT@513,S2$:UC$=CHR$(
PEEK(ST+P1))
100 K$=INKEY$:IF K$<>"" THEN 130
110 D=D-1:IF D=0 THEN D=10:CR=NOT CR:IF CR THEN PRINT@
P1,UC$;:PRINT@512+P2,UC$; ELSE PRINT@P1,CHR$(143);:PRI
NT@512+P2,CHR$(143);
120 GOTO 100
130 K=ASC(K$):PRINT@P1,UC$;:PRINT@512+P2,UC$;:D=1:IF L
>254 AND K>31 THEN 100
140 IF K=14 THEN I=-1:GOTO 100
150 IF K=8 OR K=9 THEN I=0:P1=P1+(K=8 AND P1>1)-(K=9 A
ND P1<L-1):GOTO 80
160 IF K=4 THEN I=0:K$="":GOTO 180
170 IF K<32 OR K>122 THEN 100
180 LM=L+((K=4 OR I=0) AND P1<L-1)
190 S1$=LEFT$(S1$,P1)+K$+RIGHT$(S1$,LM-P1):S2$=LEFT$(S
2$,LM-P1)+K$+RIGHT$(S2$,P1):P1=P1-(K<>4):GOTO 70
```

A MAN, A PLAN, A CANAL, PANAMA.

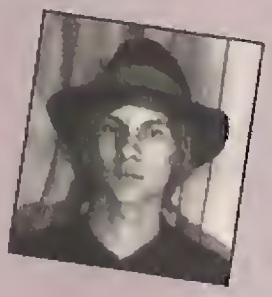
TIMEX SINCLAIR/*PALINDROME CONSTRUCTION KIT*

1000 or 1500 • 16K RAM

```
10 SLOW
20 LET P1=1
30 LET I=0
40 LET T$="  "
50 LET B$="  "
60 PRINT AT 3,5;"PALINDROME EMORDNILAP"
70 PRINT TAB 3;"CONSTRUCTION NOITCURTSNOC"
80 PRINT TAB 12;"SET TES"
90 PRINT
100 PRINT "TYPE IN TEXT AT CURSOR. USE","<SHIFT>-<S> A
S SPACE BAR."
110 PRINT "ARROW KEYS MOVE CURSOR LEFT","AND RIGHT. TO
 EDIT, USE ..."
120 PRINT
130 PRINT "<SHIFT>-<D> TO DELETE CHARACTER"
140 PRINT TAB 10;"TO RIGHT OF CURSOR;"
150 PRINT "<SHIFT>-<N> TO ENTER INSERT MODE."
160 PRINT
170 PRINT TAB 5;"PRESS ANY KEY TO BEGIN."
180 IF INKEY$="" THEN GOTO 180
190 CLS
200 LET L=LEN T$
210 LET P2=L-P1
220 LET Q=P1-1
230 GOSUB 1000
240 PRINT AT V,H;T$(P1 TO )
250 PRINT AT 10,1;B$
260 LET Q=P1
270 GOSUB 1000
280 PRINT AT V,H;CHR$ (CODE T$(P1+1)+128)
290 LET Q=P2+320
300 GOSUB 1000
310 PRINT AT V,H;CHR$ (CODE B$(P2)+128)
320 SLOW
330 LET K$=INKEY$
340 IF K$="" THEN GOTO 330
350 FAST
360 IF K$=CHR$ 225 THEN LET K$=" "
370 LET K=CODE K$
380 LET Q=P1
390 GOSUB 1000
400 PRINT AT V,H;T$(P1+1)
410 LET Q=P2+320
420 GOSUB 1000
430 PRINT AT V,H;B$(P2)
440 IF K<>19 THEN GOTO 470
450 LET I=1
460 GOTO 260
470 IF K<>228 THEN GOTO 510
480 LET I=0
490 LET K$=""
500 GOTO 560
510 IF K<>114 AND K<>115 THEN GOTO 550
520 LET I=0
530 LET P1=P1-(K=114 AND P1>1)+(K=115 AND P1<L-1)
540 GOTO 210
550 IF (K>0 AND K<11) OR K>63 THEN GOTO 260
560 LET LM=(K=228 OR I=0) AND P1<L-1
570 LET T$=T$( TO P1)+K$+T$(P1+LM+1 TO )
580 LET B$=B$( TO L-(P1+LM))+K$+B$(L-P1+1 TO )
590 LET P1=P1+(K<>228)
600 GOTO 200
1000 LET V=INT (Q/32)
1010 LET H=Q-V*32
1020 RETURN
```

The Music Gizmo

By Damon Osgood



I'll tell ya what I'm gonna do. Y'say you want to learn how to play a musical instrument? Y'say you don't want to spend years taking lessons? Y'say you can't decide on which instrument to learn? Well, have *I* got a deal for *you!*

This handy dandy little gadget will let you play five different instruments. The flute. The organ. The xylophone. The bass guitar. *And* the drums.

You're probably asking yourself, "How can this be? *Five* instruments in *one*?"

Well, I'll tell ya, it's like this: Computers these days are amazing. They can do *anything*. Now, through the miracle of modern technology, they let you play music. Without years of practice.

By now you're thinking, "OK, what's the catch?"

Well, there's no catch. No catch at all. All you've got to do is get the program running, select your instrument, and type in a few numbers. Each of these numbers represents a note in the key of C. After you type in your melody, you type in a rhythm, choosing between bass and snare drums.

All the notes are in the same key, so you can't goof up. It's so simple a chimp could use it. A chimp with a computer, that is.

DAMON OSGOOD, *16, from Brooklyn, New York, designed* Energy Probe *for* K-POWER's *June issue.*

COMMODORE/*THE MUSIC GIZMO*

Commodore 64 • 64K RAM

```
10 DIM A(9),B(9),AA(2),BB(2),CC(2),DD(2),J(1),JJ(2)
20 POKE 53280,0:POKE 53281,15:POKE 650,128
30 Y=54273:Z=Y-1:U=Y+3:V=Y+23:W=Y+4:X=Y+5
40 TT=50:J(0)=0:POKE Y+14,126:POKE Z+14,151
50 FOR T=1 TO 40:L$=L$+CHR$(96):NEXT T
60 FOR T=Z TO V:POKE T,0:NEXT T
70 PRINT CHR$(147);CHR$(31);TAB(8);"*****THE MUSIC GIZ
MO*****";CHR$(144)
80 PRINT SPC(48);"1...ORGAN";TAB(19);"2...BASS GUITAR"
90 PRINT TAB(8);"3...FLUTE";TAB(19);"4...XYLOPHONE":PR
INT
100 INPUT "WHICH INSTRUMENT";I$
110 I=VAL(I$):IF I<1 OR I>4 THEN PRINT CHR$(145);:GOTO
 100
120 IF I=1 THEN POKE W,32:POKE X,240:J(1)=33:M=1:GOTO
160
130 IF I=2 THEN POKE W,9:POKE X,2:J(1)=65:POKE Y+1,175
:POKE Y+2,2:M=1/8:GOTO 160
140 IF I=3 THEN POKE W,96:POKE X,0:J(1)=17:M=2:GOTO 16
0
150 IF I=4 THEN POKE W,8:POKE X,0:J(1)=17:M=2
160 FOR T=0 TO 9:READ N:N=N*M:B(T)=N AND 255:A(T)=(N-B
(T))/256:NEXT T
170 FOR T=0 TO 2:READ AA(T),BB(T),CC(T),DD(T),JJ(T):NE
XT T
180 PRINT L$;"  1...C","2...D","3...E","4...F","  5...
G","6...A","7...B","8...C"
190 PRINT TAB(14)"0...REST":PRINT L$
200 INPUT "ENTER YOUR MELODY SEQUENCE";A$:PRINT:PRINT
L$;
210 PRINT SPC(5);"0...REST  1...BASS  2...SNARE":PRINT
 L$
220 INPUT "ENTER YOUR RHYTHM SEQUENCE";B$:PRINT
230 PRINT "SPEED CONTROL: <F1>=FASTER  <F3>=SLOWER"
240 PRINT CHR$(31);" PRESS ANY OTHER KEY TO STOP THE M
USIC."
250 G=LEN(A$):H=LEN(B$):IF G=H THEN 280
260 IF G<H THEN FOR T=G+1 TO H:A$=A$+"0":NEXT T:GOTO 2
80
270 FOR T=H+1 TO G:B$=B$+"0":NEXT T
280 POKE V,15:RP=1:G=LEN(A$)
290 FOR T=1 TO G
300 E=VAL(MID$(A$,T,1)):F=VAL(MID$(B$,T,1))
310 IF F>2 THEN F=0
320 POKE Y,A(E):POKE Z,B(E):POKE Y+7,AA(F):POKE Z+7,BB
(F):POKE W+7,CC(F)
330 POKE X+7,DD(F):POKE U,J(-(E<>0)):POKE U+7,JJ(F)
340 FOR R=1 TO TT:NEXT R:POKE U,0:POKE U+7,0
350 GET Q$:IF Q$="" THEN 390
360 IF Q$=CHR$(133) AND TT>2 THEN TT=TT-3:GOTO 390
370 IF Q$=CHR$(134) THEN TT=TT+3:GOTO 390
380 RP=0:T=G
390 NEXT T:IF RP THEN 290
400 FOR T=Z TO V:POKE T,0:NEXT T:RESTORE:GOTO 70
1000 DATA 0,4291,4817,5407,5728,6430,7217,8101,8583
1010 DATA 0,0,0,0,0,2,24,4,4,33,253,46,6,0,129,0,0
```

Amazing Drumulator

By K-POWER's Resident Hacker

If you want to cause a racket, type this in. If you want your computer to sound like a drum, type this in. If you want to mess around with some weird noises, type this in. If you want to practice your typing, type this in.

To work *Amazing Drumulator* all you have to do is punch a few keys. That's it. Simple as pie. Three different keys plus the space bar produce four different drum sounds and the number keys adjust how many times the drums repeat.

So, what are you waiting for? Don't *you* want to be the first on your block to have *Amazing Drumulator*?

ATARI/AMAZING DRUMULATOR

400, 600XL, 800, or 800XL • 16K RAM

```
10 DIM TONE(3,3),QUAL(3,3),L$(40):OPEN #1,4,0,"K:"
20 L$=CHR$(146):L$(40)=L$:L$(2)=L$:POKE 82,0:POKE 752,
1:SETCOLOR 2,11,4
30 FOR X=0 TO 3:FOR Y=0 TO 2
40 READ T:TONE(X,Y)=T:READ T:QUAL(X,Y)=T
50 NEXT Y:NEXT X
60 PRINT CHR$(125);L$:POSITION 12,1:PRINT "THE DRUM MA
CHINE":PRINT L$:POSITION 15,6:PRINT "<Y>=HI HAT"
70 POSITION 7,10:PRINT "<G>=TOM-TOM      <J>=BRUSH":POS
ITION 13,14:PRINT "<SPACE BAR>=BASS"
80 DR=3:POSITION 0,19:PRINT L$:POSITION 4,20:PRINT "RE
PEAT RATE = ";CHR$(179);" (1=FAST; 9=SLOW)":PRINT L$
90 K=PEEK(764):IF K=255 THEN 90
100 IF K=1 OR K=33 OR K=43 OR K=61 THEN 130
110 GET #1,K:IF K>48 AND K<58 THEN DR=(K-48)*5-4:POSIT
ION 18,20:PRINT CHR$(K+128)
120 GOTO 90
130 POKE 764,255:POKE 555,DR
140 S=((K=43)*1)+((K=61)*2)+((K=1)*3)+((K=33)*4)
150 IF S=0 THEN 90
160 S=S-1:DC=0
170 SOUND 0,TONE(S,0),QUAL(S,0),12-DC
180 SOUND 1,TONE(S,1),QUAL(S,1),12-DC
190 SOUND 2,TONE(S,2),QUAL(S,2),6-DC
200 IF PEEK(764)<>255 THEN 250
210 IF S=2 THEN DC=DC+1:IF DC<7 THEN 170
220 D=0
230 IF D=10 THEN 250
240 D=D+1:IF PEEK(764)=255 THEN 230
250 SOUND 0,0,0,0:SOUND 1,0,0,0:SOUND 2,0,0,0:GOTO 90
1000 DATA 2,8,3,8,1,12
1010 DATA 80,8,81,12,90,12
1020 DATA 7,8,8,8,1,12
1030 DATA 200,8,225,12,190,10
```

COMMODORE/AMAZING DRUMULATOR

VIC-20 • 5K RAM

```
10 Z$=CHR$(17):Z$=Z$+Z$+Z$:S1=36877:S2=S1-1:S3=S1-2:S4
=S1+1:POKE 650,128:R=3
20 PRINT CHR$(147);"*AMAZING DRUM MACHINE*":PRINT Z$;T
AB(4);"REPEAT RATE =";R;Z$
30 PRINT TAB(7);"<P>=SNARE":PRINT Z$;"<L>=TOM-TOM  <;>
=CLAVE"
40 PRINT Z$;TAB(3);"<SPACE BAR>=BASS"
50 GET A$
60 X=VAL(A$):IF X<>0 THEN R=X:POKE 7808,R+48:GOTO 50
70 IF A$="P" THEN V1=250:V2=150:V3=150:A=4:D=2:GOTO 12
0
80 IF A$="L" THEN V1=220:V2=150:V3=0:A=15:D=1:GOTO 120
90 IF A$=";" THEN V1=250:V2=230:V3=0:A=5:D=3:GOTO 120
100 IF A$=CHR$(32) THEN V1=255:V2=128:V3=0:A=5:D=3:GOT
O 120
110 GOTO 50
120 POKE S1,V1:POKE S2,V2:POKE S3,V3:FOR F=0 TO 15 STE
P A:POKE S4,F:NEXT F
130 FOR F=15 TO 0 STEP -D:POKE S4,F:NEXT F:POKE S4,0
140 FOR DL=1 TO R*20:NEXT DL
150 GET B$:IF B$="" THEN 50
160 IF B$<>A$ THEN A$=B$:GOTO 60
170 GOTO 50
```

Melodies from Mars

By Claude McGehee

Last time the space shuttle visited space, something very peculiar happened. The shuttle's crew picked up a series of screechy transmissions emanating from the surface of Mars. The noise didn't seem like much, but some whiz back at NASA decided to record the sounds and load them into a computer. He discovered that the transmissions were from a Martian computer program . . . one that creates Martian music!

Martian music is very different from the stuff Earthlings are used to. Nonetheless, composing a Martian melody is very easy. After typing in and running the program, all you have to do is input a few numbers. Tap the ENTER key and you'll hear an original Martian composition.

Every tune created with this program is guaranteed to sell a million records on Mars.

CLAUDE McGEHEE, *from Booneville, Arkansas, teaches math, science, and art when he's not programming.*

TEXAS INSTRUMENTS/*MELODIES FROM MARS*

TI-99/4A • 16K RAM • TI Extended BASIC

```
10 DIM F(112)
20 CALL CLEAR
30 DISPLAY AT(1,6):"MELODIES FROM MARS"
40 DISPLAY AT(3,0):"ENTER A LINE OF DIGITS FROM"
50 DISPLAY AT(4,0):"0 TO 8 (E.G., 102033404567)."
60 DISPLAY AT(6,0):"TRY THESE ...": :"3212123000605000
": :"6070507010203000": : :"THEN DO YOUR OWN.": : : :
70 DISPLAY AT(15,0):"WHAT ARE YOUR DIGITS?"
80 ACCEPT AT(16,0)BEEP VALIDATE("012345678"):A$
90 DISPLAY AT(20,8):"PRESS ANY KEY"
100 DISPLAY AT(21,6):"TO STOP THE MELODY."
110 FOR X=1 TO LEN(A$)
120 F(X)=-VAL(SEG$(A$,X,1))
130 IF F(X)=0 THEN F(X)=30000
140 NEXT X
150 FOR X=1 TO LEN(A$)
160 CALL SOUND(-200,F(X),2)
170 NEXT X
180 CALL KEY(0,K,S):: IF S=0 THEN 150 ELSE 20
```


Programming tricks, reader advice, and corrections

CONVERTER CATASTROPHES?

A line was inadvertently dropped from the TI-99/4A version of *Decimal-Hex-Binary Converter* (September/October, page 36). Lines 90–120 are supposed to read as follows:

```
90 IF BA<>10 AND LEN(NUM$)<2 THEN 20
100 NM=0 :: FL=0
110 FOR X=1-(BA<>10) TO LEN(NUM$):: B$=SEG$(NUM$,X,1)
120 IF B$="0" OR B$="1" THEN 160
```

Also, the IBM version (page 35) uses a built-in function of IBM BASIC to convert decimal numbers to hexadecimal. This works if the decimal numbers are no higher than 65,535. The program will halt with an error if you exceed this limit. To prevent this, change lines 10 and 1000–1030 to read

```
10 Q$=CHR$(34):TRU=-1

1000 ANS$="":C=NUM
1010 IF C<16 THEN PRINT "HEXADECIMAL: $";:IF C<10 THEN
 PRINT RIGHT$(STR$(C),1);ANS$:RETURN
1020 IF C<16 THEN PRINT CHR$(C+55);ANS$:RETURN
1030 DV=INT(C/16):R=C-16*DV:ANS$=CHR$(R+48+7*(R>9)*TRU
)+ANS$:C=DV:GOTO 1010
```

E-Z Flight Simulator

By Dan Persons

Climb! Dive! Bank! Land! This simplified flight simulator may not have all the features of its store-bought cousins, but it gives you a good idea of how easy it is to achieve first-person flying effects on your own computer.

It's no big deal putting a line on the screen and making it move up and down or tilt left and right by moving a joystick or tapping some keys. The trick is making the line look like a horizon—rising, falling, and tilting as you put your plane through its maneuvers. Success depends on creating the impression that your plane is responding to the laws of momentum and inertia. When you pull the stick over, the plane slowly stops moving in its original direction and starts to bank into a new course, leaning more and more sharply as the moments pass.

E-Z Flight Simulator achieves this effect using a simple technique. Each time the horizon is erased and redrawn, its endpoints move up or down by a number of pixels corresponding to the current value of a counter—C1 for the left side, C2 for the right. The values of C1 and C2 will change according to which way you want to go and how many times you've pressed the key or how long you've tilted the joystick in that direction.

When you start flying, the horizon line is level at the center of the screen and the values of C1 and C2 are zero. Press the "climb" key (or on the Atari version, pull the joystick back) and the values of both counters become one. The horizon line starts moving down the screen, one pixel per step. Press the "climb" key repeatedly, and the values of C1 and C2 will continue to increase, moving the horizon line down the screen by larger and larger steps.

Pressing the "dive" key moves the horizon *up* the screen, using the same method.

To tilt the horizon so it represents a bank, we increase the value of one counter while decreasing the value of the other by the same amount. As the counters move further and further apart in value, the horizon line tilts more and more to one side or the other.

The main routine of the program is only a few lines long. Most of the rest of the code is used to create the various "goodies" that make each version unique. The CoCo *E-Z Flight Simulator* has two active indicators, one for the altimeter, another to show the degree of horizontal movement. The Atari, Apple, and IBM versions feature a digital altimeter, a compass that seems to rotate to show your heading, and some assorted "do-nothing" dials and gauges just for show.

Hint: Always be sure to keep one eye on the altimeter as you go through your maneuvers. If you're descending at a slow enough rate when you hit zero altitude, you'll make a soft landing. Dive too fast, and BOOOOOM!

HOW TO CONTROL YOUR PLANE

On an Atari, you can use your joystick just like the stick in a plane's cockpit: pull toward you to climb, push forward to dive, move left or right to bank.

On the IBM or CoCo, use the cursor keys the same way you'd use a joystick. For example, to

DAN PERSONS *also designed our September/October issue's Pixel That! program*, Endless Hallway.

climb you'd pull a stick back, so you press the down ARROW key; to dive, use the up ARROW key.

Apple owners use the "IJKL" key cluster: "K" to climb, "I" to dive, and "J" and "L" to bank.

APPLE/*E-Z FLIGHT SIMULATOR*

II plus, IIe, or IIc • 32K RAM • color TV or monitor optional

```
10 CP$ = " !  N  !  NE !  E  !  SE !  S  !  SW !  W  !
  NW !  N  !"
20 ALT = 5000:FA = 0:Y1 = 69:Y2 = 69:HO = 1:C1 = 0:C2
= 0:PI = 3.14159/180
30 HOME:HGR:HCOLOR= 7:HPLOT 1,1:CALL 62454:HCOLOR= 4
40 FOR X = 1 TO 278 STEP 4:HPLOT X,1 TO X,158:NEXT X
50 FOR Y = 1 TO 158 STEP 2:HPLOT 1,Y TO 278,Y:NEXT Y
60 FOR X = 80 TO 200:HPLOT X,9 TO X,129:NEXT X
70 FOR Y = 138 TO 147:HPLOT 80,Y TO 200,Y:NEXT Y
80 XC = 40:YC = 60:FOR I = 0 TO 1:FOR J = 0 TO 1
90 HCOLOR= 4:X = XC+200*I:Y = YC+60*J
100 FOR A = 50 TO 130 STEP 1.5:D = A*PI
110 HPLOT X,Y TO X+35*COS(D),Y-35*SIN(D)
120 NEXT A:HCOLOR= 7
130 HPLOT X,Y TO X-RND(1)*15,Y-30:NEXT J,I
140 HPLOT 80,9 TO 80,129 TO 200,129 TO 200,9 TO 80,9
150 HPLOT 80,138 TO 80,147 TO 200,147 TO 200,138 TO 80
,138
160 HPLOT 140,139 TO 140,146
170 FOR I = 2 TO 6 STEP 0.2:P = 1.5*I*I
180 HPLOT 140+P,139 TO 140+P,146
190 HPLOT 140-P,139 TO 140-P,146:NEXT I
200 VTAB 21:PRINT TAB(8);"ALTITUDE";SPC(11);"COMPASS"
210 HCOLOR= 6:HPLOT 81,Y1 TO 199,Y2
220 K = PEEK(-16384)-128:POKE -16368,0:IF K<73 OR K>76
 THEN 280
230 C1 = C1+(K = 75)+(K = 76)-(K = 73)-(K = 74)
240 C2 = C2+(K = 74)+(K = 75)-(K = 73)-(K = 76)
250 FA = FA+(K = 75)-(K = 73)-(K = 74)-(K = 76)
260 IF C1>5 THEN C1 = 5
270 IF C2>5 THEN C2 = 5
280 IF FA>5 THEN FA = 5
290 Y3 = Y1:Y4 = Y2:Y1 = Y1+C1:Y2 = Y2+C2:ALT = ALT+FA

300 IF Y1<10 OR Y1>128 THEN Y1 = 10+(Y1>128)*118
310 IF Y2<10 OR Y2>128 THEN Y2 = 10+(Y2>128)*118
320 IF ALT<0 OR ALT>10000 THEN ALT = (ALT>10000)*10000

330 IF Y1<>Y2 THEN HO = HO+SGN(Y1-Y2):GOTO 350
340 HO = HO+(K = 76)-(K = 74)
350 IF HO<1 OR HO>48 THEN HO = 1+(HO<48)*47
360 IF Y1 = Y3 AND Y2 = Y4 THEN 390
370 HCOLOR= 4:HPLOT 81,Y3 TO 199,Y4
380 HCOLOR= 6:HPLOT 81,Y1 TO 199,Y2
390 T$ = STR$(ALT):VTAB 22:HTAB 13-LEN(T$):PRINT " ";A
LT;
400 HTAB 26:INVERSE:PRINT MID$(CP$,HO,9);:NORMAL
410 FOR I = 0 TO ABS(Y1-Y2)/20:A = PEEK(-16336):FOR DL
 = 1 TO 3:NEXT DL,I:M = FRE(0)
420 IF ALT>0 THEN 220
430 HOME:VTAB 21:IF ABS(FA)<2 AND ABS(Y1-Y2)<6 THEN PR
INT "CONGRATULATIONS! YOU HAVE LANDED SAFELY.":GOTO 47
0
440 PRINT TAB(9);"YOU'VE CRASH LANDED!"
450 FOR I = 7 TO 0 STEP -1:HCOLOR= I:HPLOT 1,1
460 CALL 62454:NEXT I
470 VTAB 23:PRINT TAB(7);"PRESS ANY KEY TO FLY AGAIN."
;:GET T$:GOTO 20
```

ATARI/*E-Z FLIGHT SIMULATOR*

400, 600XL, 800, or 800XL • 16K RAM • one joystick (port 1) • color TV or monitor optional

```
10 DIM CP$(56):DEG :CP$=" *  N  *  NE *  E  *  SE *  S
  *  SW *  W  *  NW *  N  !"
20 FOR X=1 TO 56:CP$(X,X)=CHR$(ASC(CP$(X))+128):NEXT X
30 ALT=5000:FA=0:HOR=1:Y1=31:Y2=31:C1=0:C2=0
40 GRAPHICS 7:SETCOLOR 0,8,12:SETCOLOR 1,12,10:SETCOLO
R 2,0,0:POKE 752,1
50 COLOR 2:PLOT 42,0:DRAWTO 117,0:DRAWTO 117,60:DRAWTO
 42,60:DRAWTO 42,0
60 FOR C=1 TO 6:READ DX,DY:COLOR 2
70 PLOT DX,DY:DRAWTO DX+8,DY+14:DRAWTO DX+16,DY
80 DX=DX+8:DY=DY+10:FOR I=230 TO 310 STEP 5
90 X=DX+COS(I)*12:Y=DY+SIN(I)*12:PLOT X,Y
100 NEXT I:COLOR 1:PLOT DX,DY:DRAWTO X-(10*RND(0))-3,Y
:NEXT C:COLOR 3
110 FOR YA=63 TO 75 STEP 2:PLOT 0,YA:DRAWTO 46,YA:PLOT
 113,YA:DRAWTO 159,YA:NEXT YA
120 POKE 657,6:PRINT "ALTITUDE";:POKE 657,26:PRINT "CO
MPASS":PRINT
130 COLOR 2:PLOT 43,Y1:DRAWTO 116,Y2
140 S=STICK(0):IF S=15 THEN 200
150 C1=C1+(S=5)+(S=7)+(S=13)-(S=10)-(S=11)-(S=14)-(S=6
)*(Y2=2)+(S=9)*(Y2=58)
160 C2=C2+(S=9)+(S=11)+(S=13)-(S=6)-(S=7)-(S=14)+(S=5)
*(Y1=58)-(S=10)*(Y1=2)
170 FA=FA+(S=5)+(S=9)+(S=13)-(S=6)-(S=10)-(S=14)
180 IF C1>5 THEN C1=5
190 IF C2>5 THEN C2=5
200 IF FA>5 THEN FA=5
210 Y3=Y1:Y4=Y2:Y1=Y1+C1:Y2=Y2+C2:ALT=ALT+FA
220 IF Y1<1 OR Y1>59 THEN Y1=1+(Y1>59)*58
230 IF Y2<1 OR Y2>59 THEN Y2=1+(Y2>59)*58
240 IF ALT<0 OR ALT>10000 THEN ALT=(ALT>10000)*10000
250 IF Y1<>Y2 THEN HOR=HOR+SGN(C1-C2):GOTO 270
260 HOR=HOR+(S>4 AND S<8)-(S>8 AND S<12)
270 IF HOR<1 OR HOR>48 THEN HOR=1+(HOR<48)*47
280 IF Y1=Y3 AND Y2=Y4 THEN 300
290 COLOR 0:PLOT 43,Y3:DRAWTO 116,Y4:COLOR 2:PLOT 43,Y
1:DRAWTO 116,Y2
300 POKE 657,10-LEN(STR$(ALT))
310 PRINT " ";ALT;:POKE 657,25:PRINT CP$(HOR,HOR+8);
320 IF ALT>500 THEN SETCOLOR 2,0,0:GOTO 340
330 SETCOLOR 2,3,2
340 SOUND 0,170-ALT/60,8,5
350 IF ALT>0 THEN 140
360 IF ABS(FA)<2 AND ABS(Y1-Y2)<6 THEN 400
370 GRAPHICS 2+16:FOR I=1 TO 40:SETCOLOR 4,PEEK(53770)
,10
380 FOR D=1 TO 10:NEXT D:SOUND 0,PEEK(53770),8,10:NEXT
 I:SOUND 0,0,0,0
390 SETCOLOR 4,0,0:PRINT #6;"YOU'VE CRASH LANDED!":GOT
O 420
400 GRAPHICS 18:PRINT #6;"  CONGRATULATIONS":PRINT #6;
" ON A SAFE LANDING!"
410 FOR D=200 TO 0 STEP -2:SOUND 0,D,10,10:NEXT D
420 POKE 764,255:POSITION 3,9:PRINT #6;"PRESS ANY KEY"
:PRINT #6;"    TO FLY AGAIN."
430 IF PEEK(764)<>255 THEN RESTORE :GOTO 30
440 GOTO 430
1000 DATA 12,5,2,40,22,40,120,5,140,5,130,40
```

P I X E L T H A T !

IBM/E-Z FLIGHT SIMULATOR

PC or PCjr • 64K RAM • Color Graphics Adapter (PC) • color TV or monitor optional

```
10 CPS=" !  N  !  NE !  E  !  SE !  S  !  SW !  W  !
NW !  N  !"
20 ALT=5000:FA=0:Y1=80:Y2=80:H0=1:C1=0:C2=0:PI=3.14159
/180
30 FOR I=2 TO 56:IF MID$(CP$,I,1)="!" THEN MID$(CP$,1,
1)=CHR$(179)
40 NEXT I:KEY OFF:CLS:SCREEN 1,0:COLOR 1
50 FOR Y=0 TO 160
60 LINE (0,Y)-(319,Y),,,&H9249-&H6D86*(Y/2=INT(Y/2))
70 NEXT Y:LINE (84,9)-(235,151),0,BF
80 XC=40:YC=60:FOR I=0 TO 1:FOR J=0 TO 1
90 X=XC+240*I:Y=YC+60*J
100 FOR A=55 TO 125 STEP .7:D=A*PI
110 LINE (X,Y)-(X+35*COS(D),Y-35*SIN(D)),1
120 NEXT A:LINE (X,Y)-(X-RND*10,Y-30):NEXT J,I
130 LOCATE 22,7:PRINT "ALTITUDE";TAB(27);"COMPASS"
140 LINE (196,180)-(276,196),3,B
150 LINE (85,Y1)-(234,Y2),1
160 SOUND 2000,.01:K$=INKEY$
170 K=0:IF LEN(K$)<2 THEN 230 ELSE K=ASC(RIGHT$(K$,1))
-71
180 C1=C1+(K=1)+(K=4)-(K=6)-(K=9)
190 C2=C2+(K=1)+(K=6)-(K=4)-(K=9)
200 FA=FA+(K=1)+(K=4)+(K=6)-(K=9)
210 IF C1>5 THEN C1=5
220 IF C2>5 THEN C2=5
230 IF FA>5 THEN FA=5
240 Y3=Y1:Y4=Y2:Y1=Y1+C1:Y2=Y2+C2:ALT=ALT+FA
250 IF Y1<11 OR Y1>149 THEN Y1=11-(Y1>149)*138
260 IF Y2<11 OR Y2>149 THEN Y2=11-(Y2>149)*138
270 IF ALT<0 OR ALT>10000 THEN ALT=-(ALT>10000)*10000
280 IF Y1<>Y2 THEN H0=H0+SGN(Y1-Y2) ELSE H0=H0+(K=4)-(
K=6)
290 IF H0<1 OR H0>48 THEN H0=1-(H0<48)*47
300 IF Y1=Y3 AND Y2=Y4 THEN 320
310 LINE (85,Y3)-(234,Y4),0:LINE (85,Y1)-(234,Y2),1
320 T$=STR$(ALT):LOCATE 24,13-LEN(T$):PRINT ALT;
330 LOCATE 24,26:PRINT MID$(CP$,H0,9);
340 IF ALT>500 THEN COLOR 1:GOTO 360
350 COLOR 12:SOUND 600-ALT,.5,10
360 IF ALT>0 THEN 160 ELSE CLS:LOCATE 20,9
370 IF ABS(FA)<2 AND ABS(Y1-Y2)<6 THEN 410
380 PRINT "YOU HAVE CRASH LANDED!"
390 FOR I=2 TO 15:COLOR I:FOR D=1 TO 100
400 NEXT D:SOUND I*100,1:NEXT I:COLOR 4:GOTO 430
410 COLOR 2:PRINT "CONGRATULATIONS! YOU HAVE LANDED SA
FELY."
420 FOR I=1000 TO 1700 STEP 5:SOUND I,.2:NEXT I
430 LOCATE 23,7:PRINT "PRESS <ENTER> TO FLY AGAIN."
440 IF INKEY$<>CHR$(13) THEN 440 ELSE 20
```

RADIO SHACK/E-Z FLIGHT SIMULATOR

TRS-80 Color Computer • 16K RAM • Extended Color BASIC • color TV optional

```
10 CLS:PMODE 3,1:PCLS:SCREEN 1,0:COLOR 3,1
20 Y1=81:Y2=81:V1=780:VFLG=0:C1=0:C2=0:H1=138
30 LINE (34,0)-(254,159),PSET,B
40 LINE (0,0)-(30,160),PSET,B:LINE (58,161)-(226,191),
PSET,B
50 FLG=0:FOR Y=8 TO 152 STEP 8
60 IF FLG=0 THEN LINE (24,Y)-(28,Y),PSET:FLG=1:GOTO 80
70 LINE (26+(Y=80)*10,Y)-(28-(Y=80)*2,Y),PSET:FLG=0
80 NEXT Y:FLG=0:FOR X=62 TO 222 STEP 10
90 IF FLG=0 THEN LINE (X,162)-(X,167-(X=142)*11),PSET:
FLG=1:GOTO 110
100 LINE (X,162)-(X,165),PSET:FLG=0
110 NEXT X:LINE (2,V1/10)-(14,(V1/10)+4),PSET,BF
120 LINE (138,178)-(138+8,190),PSET,BF
130 LINE (36,Y1)-(252,Y2),PSET
140 K=0:K$=INKEY$:IF K$="" THEN 220 ELSE K=ASC(K$)
150 IF K<8 OR (K>10 AND K<>94) THEN 220
160 C1=C1-(K=9)-(K=10)+(K=8)+(K=94)
170 C2=C2-(K=8)-(K=10)+(K=9)+(K=94)
180 VFLG=VFLG-(K=8)-(K=9)-(K=94)+(K=10)
190 IF C1>5 THEN C1=5
200 IF C2>5 THEN C2=5
210 IF VFLG>5 THEN VLAG=5
220 Y3=Y1:Y4=Y2:Y1=Y1+C1:Y2=Y2+C2:H2=H1
230 V2=V1:V1=V1+VFLG
240 IF Y1<2 OR Y1>158 THEN Y1=2-(Y1>158)*156
250 IF Y2<2 OR Y2>158 THEN Y2=2-(Y2>158)*156
260 IF V1<10 OR V1>1560 THEN V1=10-(V1>1560)*1550
270 H1=138+(Y1-Y2)/2
280 IF H1<60 OR H1>224 THEN H1=60-(H1>224)*164
290 IF Y1=Y3 AND Y2=Y4 THEN 310
300 LINE (36,Y3)-(252,Y4),PRESET:LINE (36,Y1)-(252,Y2)
,PSET
310 IF H1=H2 THEN 330
320 LINE (H2,178)-(H2+8,190),PRESET,BF:LINE (H1,178)-(
H1+8,190),PSET,BF
330 IF INT(V1/10)=INT(V2/10) THEN 360
340 LINE (2,V2/10)-(14,V2/10+4),PRESET,BF
350 LINE (2,V1/10)-(14,V1/10+4),PSET,BF
360 IF V1<1560 THEN 140
370 SCREEN 0,0:IF ABS(Y1-Y2)<6 AND ABS(VFLG)<2 THEN 40
0
380 FOR I=1 TO 8:SOUND I*10,5:CLS(I):NEXT I
390 PRINT@230,"YOU HAVE CRASH LANDED!";:GOTO 420
400 CLS(1):PRINT@231,"CONGRATULATIONS ON"
410 PRINT@265,"A SAFE LANDING!":FOR I=50 TO 100:SOUND
I,1:NEXT I
420 PRINT@323,"PRESS ANY KEY TO FLY AGAIN.";
430 IF INKEY$<>"" THEN 10 ELSE 430
```

ATTENTION PROGRAMMERS!

Aching to share your latest and greatest program with the rest of the world? Well, then send it along to K-POWER! If we enjoy it, we'll publish it in Hacker Heaven and send you $50 for programs between 10 and 50 lines, and $20 for those under 10 lines. Send a disk or tape containing two copies of your program(s), plus a listing (preferably a printout) to: Michael Tuomey, Hacker Heaven editor, c/o K-POWER, 730 Broadway, New York, NY 10003. We need to know your name, address, age, phone number, computer model, program title with brief description, computer language, and the memory required.

ENCODER/DECODER CONTEST WINNERS

Back in K-POWER's March issue, we challenged the expert programmers among our readers to a little contest.

We wanted to see if anyone could design a program that encoded and decoded messages within the limits of 10 program lines. The response was incredible! We received programs from every corner of the country and from hackers of all ages.

After many late nights of typing in and testing programs, we finally found two winners. Yes, two! Both programs were so good we couldn't leave either one out of the limelight.

The grand prizes, one-year subscriptions to K-POWER, and K-POWER designer T-shirts, are now on their way to two lucky Pennsylvanians: Jim Tancosh, 33, of Pittsburgh, and Trevor Middleton, 13, of Philadelphia.

Jim's program ciphers by adding the ASCII value of each character in the input string to the ASCII value of the character that occupies the same position in the key string, C$. The interesting thing about this approach is that you can produce different ciphers from the same text by simply changing the key string. Also, even if someone finds your coded message and has a copy of the program, they can't decode your message without knowing what key string was used to encode it.

RADIO SHACK/*TANCOSH CODER*

TRS-80 Model III • 16K RAM

```
10 CLEAR 500:CLS:C$="RUMPELSTILTSKINREADSKPOWERMAGAZIN
EALLOFTHETIME"
20 PRINT@0,"ENCODER/DECODER";CHR$(10);:INPUT "1) ENCOD
E  --  2) DECODE";A:PRINT:ON A GOTO 30,60
30 LINE INPUT T$:Q=1:FOR Z=1 TO LEN(T$):A$=MID$(T$,Z,1
):B$=MID$(C$,Q,1):C=ASC(A$)+ASC(B$)-32:Q=Q+1:IF Q>LEN(
C$) THEN Q=1
40 IF C>90 THEN C=C-59:PRINT CHR$(C);:NEXT Z ELSE PRIN
T CHR$(C);:NEXT Z
50 GOTO 20
60 LINE INPUT T$:Q=1:FOR Z=1 TO LEN(T$):A$=MID$(T$,Z,1
):B$=MID$(C$,Q,1):C=32+ASC(A$)-ASC(B$):Q=Q+1:IF Q>LEN(
C$) THEN Q=1
70 IF C<32 THEN C=C+59:PRINT CHR$(C);:NEXT Z ELSE PRIN
T CHR$(C);:NEXT Z
80 GOTO 20
```

Trevor's program breaks the input string into groups of five characters, coding each character by adding its ASCII value to the position it occupies (1 to 5) in its group. Grouping by fives also tends to hide the natural breaks between words, making a coded message that much harder to decipher.

ATARI/*MIDDLETON CODER*

400, 600XL, 800, or 800XL • 16K RAM

```
10 OPEN #1,4,0,"K:":PRINT CHR$(125);"CODE-DECODE: PRES
S <RETURN> TO CHANGE":PRINT "MODE."
20 PRINT :PRINT "ENCODE MODE: ENTER PLAIN TEXT.":PRINT
 :C=1:L=1
30 GET #1,A:IF A=155 THEN PRINT :GOTO 70
40 PRINT CHR$(A+C);:C=C+1:IF C=6 THEN PRINT " ";:C=1:L
=L+1
50 IF L=6 THEN PRINT :L=1
60 GOTO 30
70 PRINT :PRINT "DECODE MODE: ENTER CODE GROUPS.":PRIN
T :C=1
80 GET #1,A:IF A=155 THEN PRINT :GOTO 20
90 IF C=6 AND A=32 THEN C=1:GOTO 80
100 PRINT CHR$(A-C);:C=C+1:GOTO 80
```

Five other programmers whose efforts deserve honorable mention (and K-POWER T-shirts!) are:

Jonathan Manly, 15
Buffalo, New York

Victor Kosko, 24
Orangevale, California

Mark Schindler, 32
Honolulu, Hawaii

Scott Musgrave, 15
St. Charles, Missouri

Ken Hullenbaugh, 21
San Diego, California

Congratulations to all!

Tancosh Coder

IBM/*TANCOSH CODER*

PC or PCjr • 64K RAM

```
10 WIDTH 40:CLS:T$="":C$="RUMPELSTILTSKINREADSKPOWERMA
GAZINEALLOFTHETIME":S$=STRING$(160,32)
```

```
20 LOCATE 1,1:PRINT "ENCODER/DECODER":PRINT:PRINT "1)
ENCODE  --  2) DECODE   ";STRING$(3,29);:INPUT A:IF A<
>1 AND A<>2 THEN 20
30 LOCATE 5,1:PRINT S$;S$;:LOCATE 5,1:PRINT:LOCATE 5,1
:LINE INPUT T$
40 LOCATE 13,1:PRINT S$;S$;:LOCATE 13,1
50 Q=1:FOR Z=1 TO LEN(T$):A$=MID$(T$,Z,1)
60 B$=MID$(C$,Q,1):IF A=1 THEN C=ASC(A$)+ASC(B$)-32:IF
 C>90 THEN C=C-59:GOTO 80 ELSE 80
70 C=32+ASC(A$)-ASC(B$):IF C<32 THEN C=C+59
80 Q=Q+1:IF Q>LEN(C$) THEN Q=1
90 PRINT CHR$(C);:NEXT Z:GOTO 20
```

RADIO SHACK/ *TANCOSH CODER*

TRS-80 Color Computer • 16K RAM • Extended Color BASIC

```
10 CLS:CLEAR 1000:T$="":C$="RUMPELSTILTSKINREADSKPOWER
MAGAZINEALLOFTHETIME"
20 PRINT@0,"ENCODER/DECODER":PRINT "1) ENCODE  --  2)
DECODE":PRINT@56,"";:INPUT A:IF A<>1 AND A<>2 THEN 20
30 PRINT@64,"";:S=INT((LEN(T$)+31)/32):FOR X=1 TO S-(1
4-2*S)*(S>7):PRINT:NEXT X
40 PRINT@64,"";:LINE INPUT T$:IF T$="" THEN 20 ELSE CL
S:PRINT@64,T$;:IF LEN(T$)/32<>INT(LEN(T$)/32) THEN PRI
NT
50 Q=1:FOR Z=1 TO LEN(T$):A$=MID$(T$,Z,1)
60 B$=MID$(C$,Q,1):IF A=1 THEN C=ASC(A$)+ASC(B$)-32:IF
 C>90 THEN C=C-59:GOTO 80 ELSE 80
70 C=32+ASC(A$)-ASC(B$):IF C<32 THEN C=C+59
80 Q=Q+1:IF Q>LEN(C$) THEN Q=1
90 PRINT CHR$(C);:NEXT Z:GOTO 20
```

TEXAS INSTRUMENTS/ *TANCOSH CODER*

TI-99/4A • 16K RAM • TI Extended BASIC

```
10 CALL CLEAR :: C$="RUMPELSTILTSKINREADSKPOWERMAG"
20 DISPLAY AT(1,1):"ENCODER/DECODER" :: DISPLAY AT(2,1
):"1) ENCODE  --  2) DECODE?" :: ACCEPT AT(2,26)VALIDA
TE(DIGIT):A
30 IF A<>1 AND A<>2 THEN 20
40 ACCEPT AT(4,1)SIZE(28):T$ :: FOR Z=1 TO LEN(T$)
50 A$=SEG$(T$,Z,1):: B$=SEG$(C$,Z,1)
60 IF A=1 THEN C=ASC(A$)+ASC(B$)-32 :: IF C>90 THEN C=
C-59 :: GOTO 80 ELSE 80
70 C=32+ASC(A$)-ASC(B$):: IF C<32 THEN C=C+59
80 DISPLAY AT(5,Z):CHR$(C):: NEXT Z :: GOTO 20
```

Middleton Coder

APPLE/ *MIDDLETON CODER*

II plus, IIe, or IIc • 32K RAM

```
10 HOME:PRINT "CODE-DECODE: PRESS <RETURN> TO CHANGE";
PRINT TAB(14);"MODE."
20 PRINT:PRINT:PRINT "ENCODE MODE: ENTER PLAIN TEXT.":
PRINT:C = 1:L = 1
30 GET A$:N = ASC(A$):ON N = 13 GOTO 70:IF N = 32 THEN
 N = 64+C:GOTO 50
40 ON N < 65 GOTO 30:N = N+C-(N+C > 90)*27:IF N = 64 T
HEN N = 42
50 PRINT CHR$(N);:C = C+1:IF C = 6 THEN PRINT " ";:C =
 1:L = L+1:IF L = 6 THEN PRINT:L = 1
60 GOTO 30
70 PRINT:PRINT:PRINT "DECODE MODE: ENTER CODE GROUPS."
:PRINT:C = 1
80 GET A$:N = ASC(A$):ON N = 13 GOTO 20:IF C = 6 THEN
C = 1:GOTO 80
90 IF N = 42 THEN N = 64
100 N = N-C+(N-C < 64)*27:PRINT CHR$(N-(N = 64)*32);:C
 = C+1:GOTO 80
```

COLECO/ *MIDDLETON CODER*

ADAM • 80K RAM

```
9 REM --DEPRESS <LOCK> KEY BEFORE RUNNING PROGRAM--
10 HOME:PRINT "Code-Decode: Press <RETURN>":PRINT TAB(
14);"to change mode."
20 PRINT:PRINT:PRINT "Encode mode: enter plain text.":
PRINT:c = 1:l = 1
30 GET a$:n = ASC(a$):ON n = 3 GOTO 110:ON n = 13 GOTO
 70:IF n = 32 THEN n = 64+c:GOTO 50
40 ON n < 65 GOTO 30:n = n+c-(n+c > 90)*27:IF n = 64 T
HEN n = 42
50 PRINT CHR$(n);:c = c+1:IF c = 6 THEN PRINT " ";:c =
 1:l = l+1:IF l = 6 THEN PRINT:l = 1
60 GOTO 30
70 PRINT:PRINT:PRINT "Decode mode: enter code groups."
:PRINT:c = 1
80 GET a$:n = ASC(a$):ON n = 3 GOTO 110:ON n = 13 GOTO
 20:IF c = 6 THEN c = 1:GOTO 80
90 IF n = 42 THEN n = 64
100 n = n-c+(n-c < 64)*27:PRINT CHR$(n-(n = 64)*32);:c
 = c+1:GOTO 80
110 END
```

COMMODORE/*MIDDLETON CODER*

Commodore 64 or VIC-20 • 5K RAM

```
10 PRINT CHR$(147);"CODE-DECODE:":PRINT "<RETURN> CHAN
GES MODE."
20 PRINT:PRINT:PRINT "ENCODE MODE:":PRINT "ENTER PLAIN
 TEXT.":PRINT:C=1:L=1
30 GOSUB 1000:ON -(N=13) GOTO 70:IF N=32 THEN N=64+C:G
OTO 50
40 ON -(N<65) GOTO 30:N=N+C+(N+C>90)*27:IF N=64 THEN N
=42
50 PRINT CHR$(N);:C=C+1:IF C=6 THEN PRINT " ";:C=1:L=L
+1:IF L=4 THEN PRINT:L=1
60 GOTO 30
70 PRINT:PRINT:PRINT "DECODE MODE:":PRINT "ENTER CODE
GROUPS.":PRINT:C=1
80 GOSUB 1000:ON -(N=13) GOTO 20:IF C=6 THEN C=1:GOTO
80
90 N=N-(N=42)*22:N=N-C-(N-C<64)*27:PRINT CHR$(N+(N=64)
*32);:C=C+1:GOTO 80
1000 GET A$:ON -(A$="") GOTO 1000:N=ASC(A$):RETURN
```

MUSICAL STINGS

BY JOEY LATIMER

I recently playtested a computer game a friend of mine wrote. The game is called *Incredible Exploder*, and it took me days to get good at it. When I finally got close to winning, I started dreaming of my grand finale, my moment of glory. Would there be a flourish of trumpets? A synthesized symphony? A victory serenade?

I didn't have long to wait before the answer came. I ducked left, dove right, and scurried off the screen to victory. Aargh!!

After several seconds, I peeked out from behind my hands. Printed in the center of the screen were two tiny words: YOU WON. Needless to say, I was bummed. What kind of reward was that?!

If good music is what your computer games are missing, you've come to the right place. This month's Microtones brings you *Musical Stings*—short music routines you can use to add drama to your programs. We've got a "winner sting," which plays a victory ditty, and a "loser sting," which plays a dreary tune. ADAM and Apple owners will be glad to see we've specially created music programs for them! There's also a version for the CoCo, Atari, TI, Commodore 64, and VIC-20. (Atari, TI, Commodore 64, and VIC-20 owners can look in Hacker Heaven Programs for other music stuff.)

Musical Stings consists of three sections. The first part of the program DIMensions two arrays, N and D (short for note and duration), and fills them with our music data. (Machine language is necessary to make music on ADAM and Apple computers, so the first section of those versions also contains a loop that reads in a machine-language routine and stores it in free memory.) The second and third parts of the program are the winner and loser stings—routines that play different parts of the music contained in the arrays.

Although *Musical Stings* will run correctly just as it appears, it's easy to make it part of your own computer masterpiece. First, put the initial routine and DATA statements near the beginning of your listing. Then, put the winner sting and loser sting routines wherever you want a happy or a sad tune to play. If your program already has DATA statements of its own, you may have to rearrange a few lines so that our data is read in correctly. If your program contains a RESTORE statement, you'll probably have to change other elements, too. Don't hesitate to change our line numbering, but be careful!

On this note, ADAM and Apple owners should be *very* careful entering DATA—there's machine code there, and a single typo could bomb your system! Remember to SAVE a copy of your program to disk or tape before testing.

If our variable or array names conflict with those already in your program, you can change them too. Just make sure that you change them consistently throughout the initial routine, the winner sting, and the loser sting.

JOEY LATIMER *is* K-POWER's *associate technical editor. He's a musician and a programming pro.*

APPLE/*MUSICAL STINGS*

II plus, IIe, or IIc • 16K RAM

```
9 REM --INITIAL ROUTINE; PUT NEAR START OF PROGRAM--
10 DIM N(30),D(30)
20 FOR X = 1 TO 30
30 READ N(X),D(X)
40 NEXT X
50 FOR X = 0 TO 28
60 READ ML
70 POKE 768 + X,ML
80 NEXT X
99 REM --MUSIC DATA--
100 DATA 215,50,160,50,168,25,160,25,142,50,160,25
110 DATA 142,25,125,50,142,25,125,25,116,50,125,25
120 DATA 116,25,105,50,116,25,125,25,116,25,125,25
130 DATA 142,50,160,50,215,50,160,50,160,120,215,40
140 DATA 225,40,215,40,202,120,215,240,168,120,160,120
149 REM --MACHINE CODE. TYPE THIS IN CAREFULLY!--
150 DATA 165,8,74,133,10,164,8,173,48,192,136,234
```

```
160 DATA 234,208,251,165,7,56,229,10,133,7,176,237
170 DATA 198,6,208,233,96
199 REM --THIS IS THE WINNER STING--
200 FOR X = 1 TO 22
210 POKE 8,N(X)
220 POKE 6,D(X)
230 CALL 768
240 NEXT X
299 REM --THIS IS THE LOSER STING--
300 FOR X = 23 TO 30
310 POKE 8,N(X)
320 POKE 6,D(X)
330 CALL 768
340 NEXT X
```

ATARI/*MUSICAL STINGS*

400, 600XL, 800, or 800XL • 16K RAM

```
9 REM --INITIAL ROUTINE; PUT NEAR START OF PROGRAM--
10 DIM N(30),D(30)
20 FOR X=1 TO 30
30 READ NT,DUR
40 N(X)=NT
50 D(X)=DUR
60 NEXT X
69 REM --MUSIC DATA--
70 DATA 108,85,81,85,85,42,81,42,72,85,81,42
80 DATA 72,42,64,85,72,42,64,42,60,85,64,42
90 DATA 60,42,53,85,60,42,64,42,60,42,64,42,72,85
100 DATA 81,85,108,85,81,85,81,147,108,49,114,49
110 DATA 108,49,102,147,108,343,85,147,81,123
199 REM --THIS IS THE WINNER STING--
200 FOR X=1 TO 22
210 SOUND 0,N(X),10,10
220 FOR D=1 TO D(X)
230 NEXT D
240 NEXT X
250 SOUND 0,0,0,0
299 REM --THIS IS THE LOSER STING--
300 FOR X=23 TO 30
310 SOUND 0,N(X),10,10
320 FOR D=1 TO D(X)
330 NEXT D
340 NEXT X
350 SOUND 0,0,0,0
```

COLECO/*MUSICAL STINGS*

ADAM • 80K RAM • TV, or monitor with audio plug connected

```
 9 REM --INITIAL ROUTINE; PUT AT START OF PROGRAM--
10 LOMEM: 29000
20 DIM n(30),d(30)
30 FOR x = 1 TO 30
40 READ n(x),d(x)
50 NEXT x
60 FOR x = 28000 TO 28005
70 READ ml
80 POKE x,ml
90 NEXT x
99 REM --MUSIC DATA--
100 DATA 35,200,26,200,28,100,26,100,23,200,26,100
110 DATA 23,100,21,200,23,100,21,100,20,200,21,100
120 DATA 20,100,17,200,20,100,21,100,20,100,21,100
130 DATA 23,200,26,200,35,200,26,200,26,300,35,100
140 DATA 37,100,35,100,33,300,35,600,28,300,26,300
149 REM --MACHINE CODE; TYPE THIS IN CAREFULLY!--
150 DATA 58,102,109,211,255,201
199 REM --THIS IS THE WINNER STING--
200 FOR x = 1 TO 22
210 POKE 28006,128:CALL 28000
220 POKE 28006,n(x):CALL 28000
230 POKE 28006,144:CALL 28000
240 FOR d = 1 TO d(x)
250 NEXT d
260 NEXT x
270 POKE 28006,159:CALL 28000
299 REM --THIS IS THE LOSER STING--
300 FOR x = 23 TO 30
310 POKE 28006,128:CALL 28000
320 POKE 28006,n(x):CALL 28000
330 POKE 28006,144:CALL 28000
340 FOR d = 1 TO d(x)
350 NEXT d
360 NEXT x
370 POKE 28006,159:CALL 28000
```

Special thanks to Ramsey J. Benson, coauthor of *ADAM's Companion* (Avon Books, 1984, $9.95).

COMMODORE/*MUSICAL STINGS*

Commodore 64 • 64K RAM

```
 9 REM --INITIAL ROUTINE; PUT NEAR START OF PROGRAM--
10 DIM N(30,2),D(30)
20 S=54272
30 FOR E=S TO S+28
40 POKE E,0
50 FOR X=1 TO 30
60 READ N(X,1),N(X,2),D(X)
70 NEXT X
80 POKE S+24,15
90 POKE S+5,39
100 POKE S+6,252
109 REM --MUSIC DATA--
110 DATA 18,209,200,25,30,200,23,181,100,25,30,100
120 DATA 28,49,200,25,30,100,28,49,100,31,165,200
130 DATA 28,49,100,31,165,100,33,135,200,31,165,100
140 DATA 33,135,100,37,162,200,33,135,100,31,165,100
150 DATA 33,135,100,31,165,100,28,49,200,25,30,200
160 DATA 18,209,200,25,30,200,25,30,300,18,209,100
170 DATA 17,195,100,18,209,100,19,239,300,18,209,600
180 DATA 23,181,300,25,30,200
199 REM --THIS IS THE WINNER STING--
200 FOR X=1 TO 22
210 POKE S+1,N(X,1)
220 POKE S,N(X,2)
230 POKE S+4,17
240 FOR DUR=1 TO D(X)
250 NEXT DUR
260 POKE S+4,16
270 NEXT X
299 REM --THIS IS THE LOSER STING--
300 FOR X=23 TO 30
```

```
310 POKE S+1,N(X,1)
320 POKE S,N(X,2)
330 POKE S+4,17
340 FOR DUR=1 TO D(X)
350 NEXT DUR
360 POKE S+4,16
370 NEXT X
```

COMMODORE/*MUSICAL STINGS*

VIC-20 • 5K RAM

```
9 REM --INITIAL ROUTINE; PUT NEAR START OF PROGRAM--
10 DIM N(33),D(33)
20 FOR X=1 TO 33
30 READ N(X),D(X)
40 NEXT X
50 POKE 36878,8
59 REM --MUSIC DATA--
60 DATA 201,192,215,192,212,96,215,96,219,192,215,96
70 DATA 219,96,223,192,219,96,223,96,225,192,223,96
80 DATA 225,96,228,192,225,96,223,96,225,96,223,96
90 DATA 219,192,215,192,201,192,215,192,0,0,215,288
100 DATA 201,96,199,96,201,96,203,288,201,384,0,288
110 DATA 212,288,215,240,0,0
199 REM --THIS IS THE WINNER STING--
200 FOR X=1 TO 23
210 POKE 36876,N(X)
220 FOR DUR=1 TO D(X)
230 NEXT DUR,X
299 REM --THIS IS THE LOSER STING--
300 FOR X=24 TO 33
310 POKE 36876,N(X)
320 FOR DUR=1 TO D(X)
330 NEXT DUR,X
```

RADIO SHACK/*MUSICAL STINGS*

TRS-80 Color Computer • 16K RAM

```
9 REM --INITIAL ROUTINE; PUT NEAR START OF PROGRAM--
10 DIM N(30),D(30)
20 FOR X=1 TO 30
30 READ N(X),D(X)
40 NEXT X
49 REM --MUSIC DATA--
50 DATA 108,6,147,6,140,3,147,3,159,6,147,3
60 DATA 159,3,170,6,159,3,170,3,176,6,170,3
70 DATA 176,3,185,6,176,3,170,3,176,3,170,3
80 DATA 159,6,147,6,108,6,147,6,147,10,108,3
90 DATA 99,3,108,3,117,10,108,23,140,10,147,8
99 REM --THIS IS THE WINNER STING--
100 FOR X=1 TO 22
110 SOUND N(X),D(X)
120 NEXT X
199 REM --THIS IS THE LOSER STING--
200 FOR X=23 TO 30
210 SOUND N(X),D(X)
220 NEXT X
```

TEXAS INSTRUMENTS/*MUSICAL STINGS*

TI-99/4A • 16K RAM

```
9 REM --INITIAL ROUTINE; PUT NEAR START OF PROGRAM--
10 DIM N(30)
20 DIM D(30)
30 FOR X=1 TO 30
40 READ N(X),D(X)
50 NEXT X
59 REM --MUSIC DATA--
60 DATA 295,300,392,300,370,150,392,150,440,300
70 DATA 392,150,440,150,494,300,440,150,494,150
80 DATA 523,300,494,150,523,150,587,300,523,150
90 DATA 494,150,523,150,494,150,440,300,392,300
100 DATA 294,300,392,300,392,600,294,200,277,200
110 DATA 294,200,311,600,294,1200,370,600,392,600
199 REM --THIS IS THE WINNER STING--
200 FOR X=1 TO 22
210 CALL SOUND(D(X),N(X),5)
220 NEXT X
299 REM --THIS IS THE LOSER STING--
300 FOR X=23 TO 30
310 CALL SOUND(D(X),N(X),5)
320 NEXT X
```


We'll Knock Your Socks Off For Five Bucks!

What can $5 get you these days? EnTech's $5 **Studio 64 Album** deal gives you a lot! You'll hear ten hot songs and a DJ who talks in an actual human voice. Watch the notes move across the screen in high resolution graphics. You'll also get a $5 coupon good for EnTech's advanced music synthesizer for the Commodore 64, **Studio 64.** You can't beat a deal like that, and you can't beat the way **Studio 64** sounds! We guarantee it's better than **Music Construction Set** or **Musicalc.** Order your $5 **Studio 64 Album** today!

Limited Time Offer

ENTECH

P.O. BOX 185, SUN VALLEY, CA 91353
(818) 768-6646

VISA SAVE COD & CREDIT CHARGES BY SENDING CHECK OR MONEY ORDER MasterCard

M I C R O N O T E S

Musical Pursuit: What music software company president plays accordion, bass guitar, piano, banjo, drums and congos, string bass, organ, mandolin, has fooled around with cello and violin, and plays a synthesizer?!

None other than **Ray Soular** of **EnTech**. Yes, that's the same EnTech which sponsors the First Annual Computer Song Writing Contest and produces a music program called ***Studio 64***! (The deadline for The Computer Song Writing Contest, by the way, has been extended until Dec. 1. The prize is $1,000 plus free recording time for the best song written on the Commodore 64 using EnTech's *Studio 64*. Mail to: Computer Song Contest, P.O. Box 185, Sun Valley, CA 91353.)

Ray, age 28, comes from a musical family. When he and his three brothers and one sister get together with their music-teacher pop, it's like one giant jam session! "Music is our family coat of arms," Ray says.

Having a jam session with your C 64 is what EnTech is all about. Ray explains, "We wanted to create a music package where the user could get the whole [of the Beatles'] *Sgt. Pepper* in there." The latest version of *Studio 64* is just out and has been improved. "It now has high-resolution graphics and 12 sample songs," says Ray. "Plus, you can now use sharps and flats and the control key functions."

Studio 64 sells for approximately $40. And there's other big EnTech news—before Christmas look for a new **EnTech keyboard**!

EnTech president Ray Soular plays 10 instruments!

We got the beat! The drum beat, that is! PVI sent us the **Drum-Key**, an electronic drum synthesizer for the Apple. It uses digital recordings of 28 different percussion sounds—kick-bass, snare drum, four tom-toms, cymbals, cowbells, and tambourines. Drum-Key's features include multitrack recording, single-step editing, programmable tempos, demo patterns and songs, and more. Want one? Call toll free: (800) 441-1003. $139

Ian Burden (guitarist and keyboard player for the **Human League**) admitted in a recent interview that Human League had little experience playing instruments when they recorded their first hit record "Don't You Want Me (Baby)." But, thanks to computers, it didn't matter.

The Human League.

"You can write songs, you can think up tunes in your head, and if you can't play an instrument, then computers are there to enable you to do it," Ian told the *New York Daily News*. "So a lot of people who might have been restricted by not being able to play before, but who had good ideas, can do something."

But Ian says the group's reliance on computers also hurt it. "The first thing we ever did was to make a record. There hadn't been [enough] playing together as a group." And once their producer, Martin Rushent (whose computer smarts helped forge the League's unique sound) left the group, they decided to start playing traditional instruments.

What do most Silicon Valley hackers want to do with their computers? Make music! A computerized music course at Stanford University (in the heart of the Valley), had 10 times the number of applicants than it could take! (And, in the Valley, there are more computers per person than anywhere else.)

We just received a great magazine that covers the world of electronic music! It's called ***RUG*** (***Roland Users Group* magazine**) and it has great articles about everything from **Duran Duran**, to high-school marching bands, to all the hottest music hardware. You can get a copy by writing to: Roland Corp. US, 7200 Dominion Circle, Los Angeles, CA 90040.

LET YOUR COMPUTER ORGANIZE YOUR HOBBY

ARE YOU LOSING CONTROL OF YOUR EVER-GROWING HOBBY COLLECTION? LET YOUR COMPUTER PUT YOU BACK ON TRACK!

BY PAM HOROWITZ

Are your desk drawers crammed with baseball cards? Is finding the Pete Rose rookie card impossible unless you have a long weekend to kill? It's time to call on your computer for something besides game-playing and networking!

When it comes to keeping track of hobbies, nothing works better than a computer. Use your computer as an electronic filing cabinet to save time, space, and a whole lot of frustration. And give yourself more time to enjoy your hobby!

Coins, stamps, records, dolls, computer games—packaged hobby-specific programs can organize and update almost any collection. Or, write your own program to suit your special hobby needs. (Look at the data-base program example on the following pages.) Plus read how others are putting their hobbies—and rooms—in order with their computer.

Photo: Rick Barrick

CALL UP BASEBALL CARDS

If you talk baseball with Brent Hoffman, he's bound to show you his collection of 2,000 baseball cards. Brent, a 10-year-old from a suburb of Detroit, Michigan, began collecting baseball cards in 1980—the same year his family bought its Apple II. But the computer and collection didn't get together until three years later when Brent tried to clean out his drawers.

"I knew it would be hard to trade cards with friends," said Brent, "unless I had some way of figuring out which ones I had!"

So Brent learned how to use *PFS: file* (available for the Apple II series, Apple III, and IBM PC and PC*jr*), a data-base manager published by Software Publishing Corp. (1901 Landings Drive, Mountain View, CA 94043; [415] 962-8910). Now, he can call up his cards on the screen according to the name of the player, team, year, card series, or condition. He can find the information he needs in minutes. Only trouble is, during trading sessions he still has to wait hours for his friends to do their searching manually!

STICK WITH THE STAMPS

The Shartsis family of Huntington Woods, Michigan, had their stamp collection long before they bought a computer. In fact, Ann Shartsis' father inherited the stamps from *his* father!

Mr. Shartsis used notebooks to keep track of the thousands of stamps, but kept running out of notebook space. So Ann, 17, used her programming skills to come to the rescue.

As a school project, Ann designed and programmed a data base to keep track of stamps according to stamp catalog number, condition, value, and year of publication.

Ann wrote the program in BASIC using the school's Apple computers. After the data is entered into the computer, the program automatically sorts it according to catalog number. She plans to design a mode that will let the user make changes in the information after it's been entered. But first, she is converting the program to run on a Commodore 64, the computer the Shartsis family uses at home.

TRY NEW COLLECTIONS

Twelve-year-old Josh Eudowe of Westport, Connecticut, collects just about everything under the sun. He's got growing collections of coins, stamps, baseball cards, records, and game cartridges—and loves them all!

But more than anything else, Josh likes computing on his Apple IIc. He spends hours at a time writing programs and playing games.

Once Josh learned to program in Logo and BASIC, he decided to transfer all the info from his

notebook of hobby records onto a computer disk. "I knew the computer would be much more efficient," he said. "It's hard to make changes in the entries when you use a notebook, and you get tired of leafing through the pages trying to find things."

But Josh decided not to use one of the available data-base managers on the market. He wanted to write his own program, tailored to his own needs. Josh spent nearly three hours writing a BASIC program that stores all of his hobbies. "The hardest part was deciding on the format," said Josh.

His program's menu lets the user select from a choice of baseball cards, game cartridges, coins and stamps, or records. If the choice is baseball cards, there's a place for entering the player, team, and year. In the stamp category, you enter the kind of stamp and its value. For records, the program asks for a listing of groups and their songs.

This is a simple, uncomplicated way for Josh to keep track of his hobbies. But he couldn't have done it without his computer!

MAKE PLANS WITH CANS

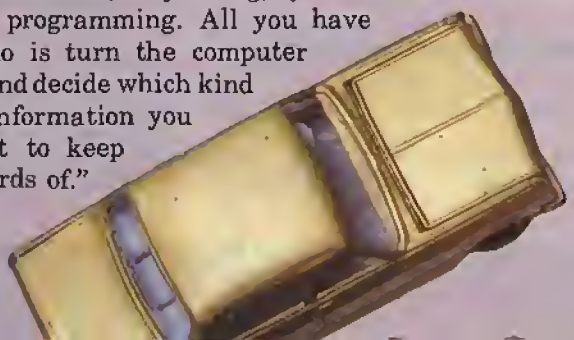
Greg Minsky, 17, also uses *PFS: File*—for his can collection. Greg began collecting cans in fifth grade when he picked 50 cans out of a recycling dumpster.

Now he's got 400 cans lining the shelves of his bedroom. And his tin collection is worth $500! There are foreign cans, bicentennial cans, and a couple of cans worth as much as $70 a piece.

Greg spent hours entering important can statistics on his Apple II plus. He traded his index cards for *PFS: file* when he found himself buying doubles of cans he already owned. "The results are well worth the effort," says Greg, of Westport, Connecticut. "Once the data's entered it can be recalled and sorted in all kinds of ways."

His file sorts his cans according to the name of the can, present book value, date, and manufacturing site. *PFS* gives him instant tracking and lets him add new entries whenever he gets them. He also can delete cans whenever he trades or sells.

"With *PFS*," says Greg, "you don't have to know any programming. All you have to do is turn the computer on and decide which kind of information you want to keep records of."



SEE STARS ON THE SCREEN

Astronomy buff Adam Cahn sees more stars on his computer screen than he could ever see in the sky. The 16-year-old from Boulder, Colorado, sees these stars with a commercial program called *TellStar*, by Sharf Software. With *TellStar*, you can look at the stars in both hemispheres, on any date, at any time, without ever leaving your computer.

Adam has been looking at the night sky through telescopes since his third-grade teacher turned him on to astronomy. He found *TellStar* at a local astronomy store, and now he can see how stars appear in other countries. "It's like traveling to different parts of the world," says Adam. He also likes *TellStar* because it does calculations quickly and it helps him draw conclusions about the positions of the planets.

And why does Adam care about stars, planets, and the sky? He plans to become an astronaut someday, and travel through outer space.

Your computer can mean the difference between a flourishing collection or an abandoned junk drawer. The possibilities are endless! How about computerizing your collection of seashells, books, or bottle caps? Or what about all those photographs, stickers, and comic books piled in your closet? You don't need a hobby program for your two dozen Italian stamps or a few tattered comic books. But if you're building up an honest-to-goodness collection or have a serious hobby, your computer can be a gem of a record-keeper! K

PAM HOROWITZ *is a* K-POWER *contributing editor.*

A LOOK AT HOBBY-SPECIFIC SOFTWARE

SOFTWARE/PRICE	MANUFACTURER	DESCRIPTION	COMPUTERS
Bowling League Secretary $74.95	CDE Software 2463 McCready, Los Angeles, CA 90039; (213) 661-2031	Keeps tabs on averages, high scores, standings, and more.	Kaypro, 64K (disk); TRS-80 Models I/III/4 with CP/M, 64K (disk)
CoinMasstore *StampMasstore* $49 each	Softshoe Enterprises 10595 Kane Ave., Whittier, CA 90604; (213) 944-5541	Two different programs for stamp and/or coin collectors.	Apple II/II plus/IIe, 48K (disk)
Family Tree $29.95	Michtron 6655 Highland Road, Pontiac, MI 48054; (313) 666-4800	This genealogy program will map your family tree.	TRS-80 Models I/III/4, 48K (disk or cassette)
Home Organizer Series $39.95 each	Batteries Included 186 Queen St. W., Toronto, Ontario M5V 1Z1; (416) 596-1405	8 separate programs for organizing stamps; recipes; photographs, slides, and home movies; or your audio/video collection.	Commodore 64,(disk)
Inventory of Coins $95	Compu-Quote 6914 Berquest Ave., Canoga Park, CA 91307; (818) 348-3662	Includes 1,600 coin descriptions and their latest value; and a data base for your collection.	Apple II series, 48K (disk); IBM PC/PC*jr*, 64K (disk); TRS-80 Models I/III/4, 48K (disk)
Secret Filer $24.95	Scholastic Software 730 Broadway, New York, NY 10003; (212) 505-3000	Creates a computerized file of any hobby.	Apple II series, 48K (disk); C 64 (disk)
TellStar $39.95 (Level 1, Apple); $49.95 (Level 1, IBM); $79.95 (Level 2, Apple); $99.95 (Level 2, IBM)	Scharf Software Systems, Inc. Suite 1068, 2111-M, 30th St., Boulder, CO 80301; (303) 666-5353	Creates a planetarium on your computer screen. Level 1 (one star table); Level 2 (three star tables).	Apple II series, 48K (disk), Apple III with emulator; IBM PC/PC*jr* 128K (disk)
Your Family Tree $29.95	Acorn Software Products 353 W. Lancaster Ave., Radnor Square, Wayne, PA 19087; (215) 964-9103	Puts your family's history in order.	IBM PC/PC*jr*, 64K (disk); TRS-80 Models III/4, 64K (disk)

SAVE YOUR HOBBY

K-POWER designed a neat program that's sure to organize your hobby. This uncomplicated data base will sort through stamps, dolls, records, or whatever else you want. Our hobby program has eight options.

1. DEFINE FIELDS—Lets you name up to 10 fields. Keep names short to allow more room for data.

2. ADD RECORDS—Enables you to enter info into the data base. Using the exit command (see version notes) in the first field of each record will return you to the menu without adding that record to the data base. Exiting from any other field will add the current record to the data base.

3. MODIFY RECORD—Permits you to edit, add, and delete data.

4. VIEW RECORDS—Displays records in sequence starting from anywhere in the data base.

5. SEARCH RECORDS—Locates data. Enter field number and *exact* item to look for. The program will find all the matches.

6. SAVE RECORDS—Stores info.

7. LOAD RECORDS—Retrieves files.

8. CATALOG—Displays your catalog. (Cannot be used in the Commodore tape version.)

VERSION NOTES: For Commodore 64, avoid using the comma, colon, and vertical cursor movement keys when entering data. The exit command is a single asterisk (*). For the Apple version, record capacity depends on the number of fields. The exit command is the ESC (escape) key.

—JOE GELMAN

Programmer JOE GELMAN *designed* K-POWER's *hobby data base and is* K-NET's *sysop.*

APPLE/*HOBBY DATA BASE*

II plus, IIe, or IIc • 32K RAM • one disk drive

```
10 CLEAR:NREC = 0:DF = 1:NFLD = -1:GOSUB 5000
20 HOME:PRINT TAB(9);:INVERSE:PRINT "K-POWER HOBBY DAT
ABASE":NORMAL:MOD = 0
```

```
30 PRINT TAB(16);"MAIN MENU":PRINT LN$
40 PRINT TAB(11);"1-DEFINE FIELDS":PRINT
50 PRINT TAB(11);"2-ADD RECORDS":PRINT
60 PRINT TAB(11);"3-MODIFY RECORD":PRINT
70 PRINT TAB(11);"4-VIEW RECORDS":PRINT
80 PRINT TAB(11);"5-SEARCH RECORDS":PRINT
90 PRINT TAB(11);"6-SAVE RECORDS":PRINT
100 PRINT TAB(11);"7-LOAD RECORDS":PRINT
110 PRINT TAB(11);"8-CATALOG":PRINT:PRINT LN$
120 PRINT " RECORDS> IN USE: ";NREC;:IF RM THEN HTAB 2
4:PRINT "REMAINING: ";RM-NREC
130 VTAB 22:HTAB 1:PRINT LN$:HTAB 11:PRINT "SELECTION
--> ";:HTAB 24
140 GET C$:C = VAL(C$):IF C < 1 OR C > 8 THEN 140
150 IF C <> 1 OR DF THEN 180
160 HOME:VTAB 5:INVERSE:PRINT BEL$;"REDEFINING FIELDS
CLEARS CURRENT MEMORY.":PRINT:PRINT "ARE YOU SURE YOU
WANT TO DO THAT (Y/N)?";:NORMAL:GET G$
170 ON (G$ <> "Y" AND G$ <> CHR$(121))+1 GOTO 10,20
180 IF NREC > 0 OR C < 3 OR C > 6 THEN 210
190 PRINT C:VTAB 24:HTAB 11:FLASH:PRINT "NO RECORDS";
200 NORMAL:HTAB 1:GOSUB 3000:PRINT SPC(30);:GOTO 130
210 HOME:ON C GOTO 220,290,290,630,710,800,860,930
220 NFLD = 0:PRINT TAB(10);"DEFINE UP TO 10 FIELDS."
230 PRINT TAB(10);"ENTER '*' WHEN FINISHED.":PRINT LN$
240 PRINT NFLD+1;"-";:INPUT T$
250 FLD$(NFLD) = LEFT$(T$,30):IF T$ = "*" THEN 270
260 PRINT LN$:NFLD = NFLD+1:IF NFLD < 10 THEN 240
270 NFLD = NFLD-1:IF NFLD = -1 THEN 20
280 RM = INT(FRM/((NFLD+1)*20)):GOTO 20
290 PRINT LN$:IF NFLD > -1 THEN 310
300 FLASH:HTAB 3:PRINT "DEFINE FIELDS BEFORE ADDING RE
CORDS.":NORMAL:PRINT LN$:GOSUB 3000:GOTO 20
310 IF DF THEN DF = 0:DIM REC$(RM,NFLD)
320 IF C = 3 THEN 350
330 TREC = NREC+1:IF TREC <= RM THEN 380
340 HOME:VTAB 12:HTAB 13:FLASH:PRINT "DATABASE FULL.":
NORMAL:GOSUB 3000:GOTO 20
350 HOME:VTAB 6:HTAB 7:INPUT "MODIFY WHICH RECORD?";T$
360 MOD = 1:TREC = INT(VAL(T$)):IF TREC = 0 THEN 20
370 IF TREC < 1 OR TREC > NREC THEN MOD = 0:GOTO 4000
380 GOSUB 1000:VTAB 4:TFLD = 0
390 CC = 1:PRINT TFLD+1;")";:INVERSE:PRINT FLD$(TFLD);
:NORMAL:PRINT ">";
400 GET G$:T = ASC(G$):IF T = 13 THEN 500
410 IF (T = 8 OR T = 127) AND CC > 1 THEN PRINT CHR$(8
);" ";CHR$(8);:CC = CC-1:GOTO 400
420 IF T = 8 OR T = 44 OR T = 58 OR T = 127 THEN PRINT
 BEL$;:GOTO 400
430 IF T <> 27 THEN 460
440 IF TREC > NREC AND TFLD > 0 THEN NREC = TREC
450 EX = 1:GOTO 600
460 IF CC+LEN(FLD$(TFLD)) = 37-(TFLD = 9) THEN PRINT B
EL$;:GOTO 400
470 IF T = 21 THEN HTAB POS(0)+2:GOTO 490
480 IF T < 32 THEN PRINT BEL$;:GOTO 400
490 PRINT G$;:CC = CC+1:GOTO 400
500 T$ = "":LF = LEN(FLD$(TFLD))+(TFLD = 9)+3
510 T = LEN(REC$(TREC,TFLD)):IF CC < T THEN CC = T
520 FOR X = LF TO LF+CC-1
529 REM --READ CHARACTERS OFF SCREEN--
530 T = SCRN(X,4*TFLD+6)+16*SCRN(X,4*TFLD+7)
540 T$ = T$+CHR$(T-128):NEXT X:LT = LEN(T$)
550 IF MID$(T$,LT,1) <> " " THEN 570
560 LT = LT-1:IF LT > 0 THEN 550
570 REC$(TREC,TFLD) = MID$(T$,1,LT)
580 TFLD = TFLD+1:PRINT:PRINT:IF TFLD <= NFLD THEN 390
590 IF TREC > NREC THEN NREC = TREC
600 IF NREC*30*(NFLD+1) > FRM THEN IF FRE(0) < 100 THE
N 610
610 IF MOD OR EX = 1 THEN EX = 0:GOTO 20
620 GOTO 330
630 PRINT TAB(4);"START VIEWING FROM WHICH ";
640 PRINT "RECORD":HTAB 4:INPUT "(<RETURN> = 1)? ";T$
650 TREC = INT(VAL(T$)):IF TREC = 0 THEN TREC = 1
660 VU = 1:IF TREC > NREC THEN VU = 0:GOTO 4000
670 GOSUB 1000:PRINT TAB(6);"PRESS ";:IF TREC < NREC T
HEN PRINT "<RETURN> FOR NEXT RECORD OR"
680 PRINT TAB(12);"<ESCAPE> FOR MENU.";:GET G$
690 TREC = TREC+1:IF TREC > NREC OR G$ = CHR$(27) THEN
 VU = 0:GOTO 20
700 GOTO 670
710 TREC = 0:GOSUB 1020:SR = 1:FM = 0:PRINT
720 VTAB 22:INPUT "SEARCH WHICH FIELD? ";T$:T = INT(VA
L(T$))-1:IF T = -1 THEN SR = 0:GOTO 20
730 IF T < 0 OR T > NFLD THEN PRINT BEL$;:VTAB 22:HTAB
 1:PRINT SPC(40):GOTO 720
740 INPUT "SEARCH FOR? ";M$
750 FOR X = 1 TO NREC
760 IF REC$(X,T) = M$ THEN FM = 1:TREC = X:GOSUB 1000
770 NEXT X:SR = 0:HTAB 1:VTAB 22:PRINT SPC(41);
780 HTAB 2+FM*11:PRINT "SEARCH COMPLETE.";:IF FM = 0 T
HEN HTAB 17:PRINT "; THERE ARE NO MATCHES."
790 HTAB 1:VTAB 24:PRINT "    ......PRESS ANY KEY FOR M
ENU......";:GET G$:GOTO 20
800 L = 1:GOTO 2000
810 PRINT NFLD:PRINT NREC
820 FOR X = 0 TO NFLD:PRINT FLD$(X):NEXT X
830 FOR X = 1 TO NREC:FOR Y = 0 TO NFLD
840 PRINT REC$(X,Y):NEXT Y:NEXT X
850 PRINT D$;"CLOSE":GOTO 20
860 L = 2:GOTO 2000
870 CLEAR:INPUT NFLD:INPUT NREC:GOSUB 5000:DF = 0
880 RM = INT(FRM/((NFLD+1)*20)):DIM REC$(RM,NFLD)
890 FOR X = 0 TO NFLD:INPUT FLD$(X):NEXT X
900 FOR X = 1 TO NREC:FOR Y = 0 TO NFLD
910 INPUT REC$(X,Y):NEXT Y:NEXT X
920 PRINT D$;"CLOSE":GOTO 20
930 ONERR GOTO 2180
940 PRINT:PRINT D$;"CATALOG"
950 PRINT:PRINT TAB(8);"PRESS ANY KEY TO CONTINUE.":GE
T G$:POKE 216,0:GOTO 20
1000 HOME:HTAB 17:PRINT "RECORD #";TREC
1010 IF NOT SR AND NOT VU THEN PRINT TAB(5);"PRESS <ES
CAPE> TO RETURN TO MENU."
1020 PRINT:FOR Y = 0 TO NFLD
1030 PRINT Y+1;")";:INVERSE:PRINT FLD$(Y);:NORMAL:PRIN
T ">";
1040 PRINT REC$(TREC,Y);:PRINT:PRINT LN$:NEXT Y
1050 IF SR THEN VTAB 23:PRINT:PRINT TAB(5);"PRESS ANY
KEY TO CONTINUE SEARCH.";:GET G$
1060 RETURN
2000 PRINT LN$:HTAB 13:IF C = 6 THEN PRINT "SAVING ";:
TY$ = "WRITE ":GOTO 2020
2010 PRINT "LOADING ";:TY$ = "READ "
2020 PRINT "DATABASE":PRINT LN$:PRINT
2030 INPUT " NAME OF FILE?";FL$:IF FL$ = "" THEN 20
2040 IF C = 7 THEN 2100
2050 ONERR GOTO 2150
2060 PRINT D$;"UNLOCK ";FL$
2070 FLASH:VTAB 12:HTAB 10:PRINT BEL$;"FILE ALREADY EX
ISTS.";:PRINT "DO YOU WISH TO REPLACE THE FILE (Y/N)?";
:NORMAL
2080 GET G$:IF G$ <> "Y" AND G$ <> CHR$(121) THEN 20
2090 HTAB 1:VTAB 12:PRINT LN$:PRINT LN$:PRINT TAB(13-(
LEN(FL$)/2));"REPLACING FILE ";FL$;".":GOTO 2150
2100 ONERR GOTO 2130
2110 PRINT D$;"UNLOCK ";FL$
2120 GOTO 2150
2130 IF PEEK(222) <> 6 THEN 2180
2140 FLASH:VTAB 12:HTAB 6:PRINT "THAT FILE IS NOT ON T
HE DISK.":GOSUB 3000:NORMAL:GOTO 20
2150 ONERR GOTO 2180
2160 PRINT:PRINT D$;"OPEN ";FL$
2170 PRINT D$;TY$;FL$:POKE 216,0:ON L GOTO 810,870
2180 FLASH:PRINT:PRINT " ERROR #";PEEK(222);". SEE MAN
UAL FOR EXPLANATION.":GOSUB 3000:NORMAL:GOTO 20
3000 PRINT BEL$;:FOR D = 1 TO 1500:NEXT D:RETURN
4000 PRINT:HTAB 7:FLASH:PRINT "RECORD ";TREC;" DOES NO
T EXIST.":GOSUB 3000:NORMAL:GOTO 20
5000 DIM FLD$(10):RM = 0:D$ = CHR$(4):BEL$ = CHR$(7)
5010 LN$ = " ":FOR X = 1 TO 38:LN$ = LN$+CHR$(45):NEXT
X:FRM = INT(FRE(0)*0.86):SR = 0:VU = 0:RETURN
```

COMMODORE/*HOBBY DATA BASE*

Commodore 64 • 64K RAM • one disk drive

```
10 CLR:DIM FLD$(9),REC$(200,9):CL$=CHR$(147)
20 BK$=CHR$(144):WH$=CHR$(5):NREC=0:NFLD=-1
30 LN$=BK$+" ":VT$=CHR$(19):FOR X=1 TO 38:LN$=LN$+CHR$
(99):VT$=VT$+CHR$(17)
40 BL$=BL$+CHR$(32):NEXT X:LN$=LN$+WH$:POKE 53281,12
50 PRINT CL$;BK$;TAB(9);"K-POWER HOBBY DATABASE"
60 PRINT TAB(15);WH$;"MAIN MENU":PRINT LN$
70 PRINT TAB(11);"1-DEFINE FIELDS":PRINT
80 PRINT TAB(11);"2-ADD RECORDS":PRINT
90 PRINT TAB(11);"3-MODIFY RECORD":PRINT
100 PRINT TAB(11);"4-VIEW RECORDS":PRINT
110 PRINT TAB(11);"5-SEARCH RECORDS":PRINT
120 PRINT TAB(11);"6-SAVE RECORDS":PRINT
130 PRINT TAB(11);"7-LOAD RECORDS":PRINT
140 PRINT TAB(11);"8-CATALOG":PRINT
150 PRINT LN$:PRINT " RECORDS>  IN USE:";NREC;SPC(3);
160 PRINT "REMAINING:";200-NREC:MOD=0:VU=0
170 PRINT LEFT$(VT$,22);LN$:PRINT TAB(11);"SELECTION -
->  ";CHR$(157);CHR$(157);
180 GOSUB 5000:C=VAL(G$):IF C<1 OR C>8 THEN 180
190 IF C<>1 OR NREC=0 THEN 230
200 PRINT CL$;BK$;"REDEFINING FIELDS CLEARS CURRENT";
210 PRINT " MEMORY.ARE YOU SURE (Y/N)?";:GOSUB 5000
220 PRINT G$:ON (G$="Y")+2 GOTO 10,50
230 IF NREC>0 OR C<3 OR C>6 THEN PRINT CL$;:GOTO 260
240 PRINT C;LEFT$(VT$,24);SPC(11);BK$;"NO RECORDS";WH$
250 GOSUB 4000:PRINT LEFT$(VT$,24);BL$;:GOTO 170
260 ON C GOTO 270,330,330,520,600,720,770,830
270 NFLD=0:PRINT TAB(10);"DEFINE UP TO 10 FIELDS."
280 PRINT TAB(10);"ENTER '*' WHEN FINISHED.":PRINT LN$
290 PRINT MID$(STR$(NFLD+1),2);:FLD$(NFLD)=""
300 INPUT FLD$(NFLD):IF FLD$(NFLD)="*" THEN 320
310 PRINT LN$:NFLD=NFLD+1:IF NFLD<10 THEN 290
320 NFLD=NFLD-1:GOTO 50
330 PRINT LN$:IF NFLD>-1 THEN 350
340 PRINT "  DEFINE FIELDS BEFORE ADDING RECORDS.":PRI
NT LN$:GOSUB 4000:GOTO 50
350 IF C=3 THEN 410
360 TREC=NREC+1
370 IF NREC*(NFLD+1)>950 THEN IF FRE(0)<100 THEN 400
380 IF MOD OR EX=1 THEN EX=0:GOTO 50
390 IF TREC<201 THEN 440
400 PRINT CL$;LEFT$(VT$,13);TAB(13);WH$;"DATABASE FULL
.";BK$:GOSUB 4000:GOTO 50
410 PRINT CL$;LEFT$(VT$,7);:MOD=1:T$="":INPUT "MODIFY
WHICH RECORD";T$
420 TREC=INT(VAL(T$)):IF TREC=0 THEN 50
430 IF TREC<1 OR TREC>NREC THEN 3000
440 GOSUB 1000:PRINT LEFT$(VT$,3):TFLD=0
450 PRINT MID$(STR$(TFLD+1),2);")";BK$;FLD$(TFLD);WH$;
460 T$="":INPUT T$:IF LEFT$(T$,1)<>"*" THEN 490
470 IF TREC>NREC AND TFLD>0 THEN NREC=TREC
480 EX=1:GOTO 370
490 REC$(TREC,TFLD)=T$:TFLD=TFLD+1:PRINT:IF TFLD<=NFLD
 THEN 450
500 IF TREC>NREC THEN NREC=TREC
510 GOTO 360
520 VU=-1:PRINT "START VIEWING FROM WHICH RECORD"
530 T$="1":INPUT "(<RETURN> = 1)";T$:TREC=INT(VAL(T$))
540 IF TREC<1 OR TREC>NREC THEN 3000
550 GOSUB 1000:T=(TREC>=NREC):PRINT TAB(3-T*7);"PRESS
";
560 IF NOT T THEN PRINT "<RETURN> FOR NEXT RECORD OR"
570 PRINT TAB(12);"'*' FOR MENU.":GOSUB 5000
580 TREC=TREC+1:IF TREC>NREC OR G$="*" THEN 50
590 GOTO 550
600 TREC=0:GOSUB 1020:SR=-1:FM=0:PRINT
610 PRINT LEFT$(VT$,23);BL$:PRINT LEFT$(VT$,23);
620 T$="":INPUT "SEARCH WHICH FIELD";T$
630 T=INT(VAL(T$))-1:IF T=-1 THEN SR=0:GOTO 50
640 IF T<0 OR T>NFLD THEN 610
650 INPUT "SEARCH FOR";M$:FOR X=1 TO NREC
660 IF REC$(X,T)=M$ THEN FM=1:TREC=X:GOSUB 1000
670 NEXT X:SR=0
680 PRINT LEFT$(VT$,22+FM);SPC(40);BL$;LEFT$(VT$,24);
690 PRINT TAB(FM*10);" SEARCH COMPLETE. ";
700 IF FM=0 THEN PRINT "THERE ARE NO MATCHES."
710 PRINT SPC(FM*12);"   .....PRESS ANY KEY FOR MENU.
.....";:GOSUB 5000:GOTO 50
720 GOSUB 2000:IF ER THEN 50
730 PRINT#2,NFLD:PRINT#2,NREC
740 FOR X=0 TO NFLD:PRINT#2,"*"+FLD$(X):NEXT X
750 FOR X=1 TO NREC:FOR Y=0 TO NFLD
760 PRINT#2,"*"+REC$(X,Y):NEXT Y:NEXT X:GOTO 820
770 GOSUB 2000:IF ER THEN 50
780 INPUT#2,NFLD:INPUT#2,NREC
790 FOR X=0 TO NFLD:INPUT#2,T$:FLD$(X)=MID$(T$,2)
800 NEXT X:FOR X=1 TO NREC:FOR Y=0 TO NFLD
810 INPUT#2,T$:REC$(X,Y)=MID$(T$,2):NEXT Y:NEXT X
820 CLOSE 2:GOTO 50
830 OPEN 2,8,0,"$":DN=1:PRINT TAB(5);BK$;"PRESS ANY KE
Y TO STOP LISTING.";WH$
840 PRINT:PRINT "DISK NAME: ";
850 GET#2,G$:IF G$=CHR$(199) THEN 900
860 IF G$<>CHR$(34) THEN 850
870 GET#2,G$:IF G$=CHR$(34) AND DN THEN DN=0:PRINT
880 IF G$=CHR$(34) THEN PRINT:GOTO 850
890 PRINT G$;:GET T$:IF T$="" THEN 870
900 CLOSE 2:PRINT:PRINT TAB(8);BK$;"PRESS ANY ";
910 PRINT "KEY FOR MENU.";BK$:GOSUB 5000:GOTO 50
1000 PRINT CL$;TAB(15);"RECORD #";TREC
1010 IF NOT SR AND NOT VU THEN PRINT TAB(6);"ENTER '*'
 TO RETURN TO MENU."
1020 PRINT:FOR Y=0 TO NFLD:PRINT MID$(STR$(Y+1),2);
1030 PRINT ")";BK$;FLD$(Y);CHR$(-SR*32);
1040 PRINT CHR$(-VU*32);WH$;:IF MOD THEN PRINT "  ";
1050 PRINT REC$(TREC,Y);:PRINT:PRINT LN$:NEXT Y
1060 IF NOT SR THEN RETURN
1070 PRINT LEFT$(VT$,24);TAB(4);"PRESS ANY KEY TO ";
1080 PRINT "CONTINUE SEARCH.";:GOSUB 5000:RETURN
2000 CLOSE 15:CLOSE 2:FL$="":REP$="":PRINT LN$:PRINT
2010 IF C=6 THEN PRINT TAB(12);"SAVING ";:TY$="W"
2020 IF C=7 THEN PRINT TAB(12);"LOADING ";:TY$="R"
2030 PRINT "DATABASE":PRINT:PRINT LN$:PRINT:PRINT:INPU
T "NAME OF FILE";FL$
2040 IF FL$="" THEN ER=1:RETURN
2050 OPEN 2,8,8,REP$+"0:"+FL$+",SEQ,"+TY$
2060 OPEN 15,8,15:INPUT#15,ER,ER$:IF ER=0 THEN RETURN
2070 PRINT:PRINT BK$;SPC((40-LEN(ER$))/2);ER$;WH$
2080 PRINT:GOSUB 4000:CLOSE 2:IF ER<>63 THEN RETURN
2090 PRINT "DO YOU WISH TO REPLACE THE FILE (Y/N)?";
2100 GOSUB 5000:PRINT G$:IF G$<>"Y" THEN RETURN
2110 CLOSE 15:REP$="@":GOTO 2050
3000 PRINT:PRINT TAB(7);BK$;"RECORD";TREC;
3010 PRINT "DOES NOT EXIST.";WH$:GOSUB 4000:GOTO 50
4000 FOR D=1 TO 1500:NEXT D:RETURN
5000 GET G$:ON -(G$="") GOTO 5000:RETURN
```

MODIFICATION FOR DATASSETTE/ *HOBBY DATA BASE*

Commodore 64 • 64K RAM • Datassette

Type in the disk version, omitting lines 830–910 and 2060–2110. Then, change lines 140, 180, 260, 2000–2020, and 2050 to read as follows:

```
140 PRINT:PRINT
180 GOSUB 5000:C=VAL(G$):IF C<1 OR C>7 THEN 180
260 ON C GOTO 270,330,330,520,600,720,770
2000 FL$="":PRINT LN$:PRINT
2010 IF C=6 THEN PRINT TAB(12);"SAVING ";:TY=1
2020 IF C=7 THEN PRINT TAB(12);"LOADING ";:TY=0
2050 CLOSE 2:OPEN 2,1,TY,FL$:RETURN
```

COMPUTERS TO GO

Portable computers are finding a spot on many hackers' most-wanted lists. This buyer's guide will help you choose the portable that's right for you.

BY RICHARD A. MARINI

Fold-'em-up and carry-'em-along portables can go where you go: to school, a friend's house, or just around. And for a price that's often less than a tabletop model, you can get a screen, a data-storage device, and sometimes a printer. Some portables even come "bundled" with their own software. Now you can word process, program, and (on some models) play games on the go.

There are drawbacks. Sometimes the screen is nothing more than a one-line, liquid-crystal display (LCD) like those used in wristwatches. The data-storage system (especially on models using cassettes) is often slow and can't store much. Some built-in printers produce only cash-register receipt-size printouts. And some portables are so heavy (up to 30 pounds) you have to be Mr. T to lug 'em around.

Here are some questions to ask yourself when shopping for a portable computer.

WHAT SCREEN SIZE DO I WANT?

Some portables come with screens as large as 9 inches diagonally across. Others only let you see one line of copy at a time. You have to scroll up and down or from side to side to get a clear idea of what you've written. But even the smallest portable can usually hook up to a larger monitor.

DO I WANT SPEED OR SMALL SIZE?

Anyone who's used a cassette-type storage system knows it has many limitations, especially in the speed department. Disk drives access data much faster, but limit how small a portable computer can

be. You'll have to decide which feature—size or speed—is more important to you.

WILL I WANT TO TELECOMMUNICATE?

Almost all larger portables come equipped with modem ports to let you phone into bulletin boards or send and receive electronic mail.

WILL I WANT TO MAKE PRINTOUTS?

If a portable comes with a printer, it probably uses cash-register receipt-size paper suitable only for calculations and rough drafts. If letter-size hard copy is needed, you'll have to add a standard-size printer. Most portable users don't print on the go; they wait until they get home or to school to use a standard-size printer.

HOW MUCH CAN I SPEND?

The main benefit of many portables is their all-in-one price. The price can range from $100 to $7,000 or more, depending on the computer and its accessories. Generally, the more you pay, the more you get. Be sure to shop around for the best deal possible on a computer that suits your needs and your pocketbook. Check out K-POWER's "Portables You Might Go For" chart for the latest info. k

---

RICH MARINI, *a freelance writer, lives in New York City.*

Illustrations: Andrea Baruffi

PORT

COMPANY	MODEL/WEIGHT/PRICE
Apple Computer 20525 Mariani Ave. Cupertino, CA 95014 (408) 996-1010	Apple IIc; 7.5 lbs.; $1,295
Commodore Business Machines 1200 Wilson Drive West Chester, PA 19380 (215) 431-9100	SX-64; 20 lbs.; $995
Epson America 3415 Kashiwa St. Torrance, CA 90505 (800) 421-5426	HX-20; 4 lbs.; $795 Geneva; 4 lbs.; $995
IBM Systems Personal Computer Division P.O. Box 1328 Boca Raton, FL 33432 (305) 272-2662	Portable Personal Computer; 30 lbs.; $2,795
Kaypro Corp. 533 Stevens Ave. Solona Beach, CA 92075 (619) 481-4300	Kaypro II; 26 lbs.; $1,295 Kaypro 4; 27 lbs.; $1,995
NEC Home Electronics 1401 Estes Ave. Elk Grove Village, IL 60007 (312) 228-5900	PC-8201; 3.8 lbs.; $599
Sharp Electronics Corp. 10 Sharp Plaza Paramus, NJ 07652 (201) 265-5600	PC-1250A; .25 lbs.; $110 PC-1500A; .83 lbs.; $220 PC-5000; 9 lbs.; $1,995
Tandy/Radio Shack 1800 One Tandy Center Fort Worth, TX 76102 (817) 390-3944	TRS-80 Model 100; 3.9 lbs.; $599 TRS-80 4P; 26 lbs.; $1,299

Apple IIc

Epson HX-20

ABLES YOU MIGHT GO FOR

STORAGE SYSTEM/RAM/ OPERATING SYSTEM	SOFTWARE INCLUDED	GRAPHICS/ GAMES	SCREEN	OPTIONS
Disk drive; 128K; ProDOS	Tutorial disks, utilities	Yes/Yes	9-inch (opt.) ($199)	Modem, printer, second disk drive, mouse, joysticks
Disk drive; 64K; BASIC	None	Yes/Yes	5.5-inch	All options for C 64
Microcassette tape; 16K; BASIC	Word processing	No/Yes	20 char. × 4 lines	Memory exp., modem
Microcassette tape; 64K; CP/M	Word processing, spreadsheet, scheduler	No/No	80 char. × 8 lines	Memory exp., modem, printer, disk drive
Disk drive; 256K; IBM-DOS	None	Yes/Yes	9-inch	Memory exp., color display, hard drive, modem, printer
Dual disk drives; 64K; CP/M	Word processing, spreadsheet, filer, dictionary, games	Yes/Yes	9-inch	Battery pack
Dual disk drives; 64K; CP/M; built-in modem	Word processing, spreadsheet, filer, dictionary	Yes/Yes	9-inch	Battery pack
Datacassette tape; 16K; BASIC	Word processing, telecommunications	Yes/Yes	40 char. × 8 lines	Memory exp., disk drive, modem, printer
C-MOS; 4.4K; BASIC	None	No/No	24 char. × 1 line	Thermal printer interface, microcassette
C-MOS; 8.5K; BASIC	None	Yes/No	26 char. × 1 line	Printer/plotter, cassette, RS-232 & parallel interface
Bubble Memory module; 128K; MS-DOS 2.0	Word processing, telecommunications	Yes/No	80 char. × 8 lines	Memory exp., modem, disk drive, printer
Microcassette tape; 8K; built-in modem	Word processing, address filer, scheduler, telecommunications	Yes/Yes	40 char. × 8 lines	Battery pack
Dual disk drives; 64K; TRS-DOS	None	Yes/Yes	9-inch	Hard-disk drive

aypro II

Sharp PC-1500A

Radio Shack TRS-80 Model 4P

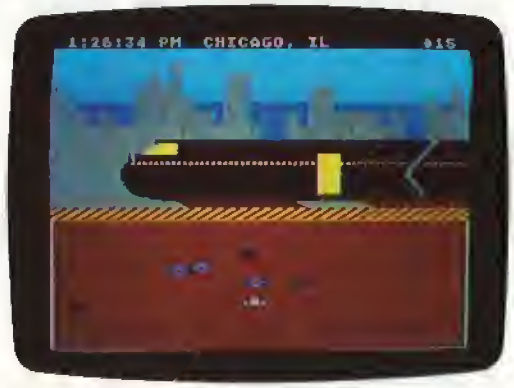
Radio Shack TRS-80 Model 100

Illustration: Peter Bagge

Help Agent U.S.A. stop the fuzz plague. And you can win a trip to Washington, D.C.

The FuzzBomb is turning millions of men, women and children into mindless fuzzbodies. And Agent U.S.A. can't stop the devious plague spreader without your help.

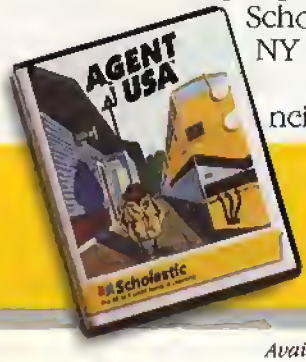
But don't accept the assignment unless you're really prepared to stretch your mind. Because sharp eyes and quick reflexes aren't enough to stop the fuzz plague. You'll have to outthink and outplan the FuzzBomb as you pursue him around the country in super-fast rocket trains. And you'll have to remember state capitals, learn the time zones and figure out the quickest routes across the nation. If you don't, the fuzzbodies will turn you into one of them.



Become one of the few super-agents to defeat the FuzzBomb and you may win a trip to intelligence headquarters in Washington, D.C. What's more, even if you never catch the evil one, tell us what you like about the game and you can become an instant winner of an Agent U.S.A. knapsack (see package for contest details).

Agent U.S.A. needs you now. So sign up where you usually buy your software. Or write to Scholastic Inc., Dept. EW, 730 Broadway, New York, NY 10003.

Do it before the fuzz plague comes to your neighborhood!



Scholastic

The Most Trusted Name in Learning

Available for Apple, Atari, Commodore and IBM.

SCREENING ROOM

THE RATING GAME

AMAZON

Reviewed on Apple, 64K (disk). Also available for Commodore 64 (disk). Trillium, One Kendall Square, Cambridge, MA 02139; (617) 494-1200. $32.95 (Commodore 64); $39.95 (Apple)

GRAPHICS: ■■■■■
EXCITEMENT: ■■■■
ORIGINALITY: ■■■■
EASE OF USE: ■■■
CHALLENGE: ■■■■■
SHELF LIFE: ■■■

Trillium has started out on the right foot with its first release, a unique and exciting graphic adventure called *Amazon*. Combining great graphics, some arcade action, and a story by science-fiction author Michael Crichton, *Amazon* tops every other graphic adventure.

Your mission, should you choose to accept it, is to journey to the Amazon and recover the lost emeralds of Chak (which are more than mere gems). Along the way you meet Paco, an intelligent talking parrot. With his help and by communicating with Washington, D.C. via computer, you bravely trek through the depths of the jungle. Before you're through, you'll encounter head-hunting natives, corrupt government troops, ferocious man-eating animals, and others.

Graphically, *Amazon* is a masterpiece, with many vivid colors, clear illustrations, and even some animation. A welcome change of pace is the occasional bit of arcade action, which gives your fingers more exercise than just typing. The sound effects are few but good.

Amazon pulls together some of the best and most popular ideas of many recent books, movies, and games. For instance, the excitement and atmosphere are a bit like Indiana Jones' adventures. And Paco, who acts as an advisor/friend, reminds me of Floyd, the robot from Infocom's text adventure *Planetfall*.

On the other hand, it also has many of its own innovations. You can choose three difficulty levels. While the basic plot remains the same, subtle changes alter it significantly. These features make for a thrilling and occasionally funny adventure. Definitely not to be missed.

DAVID LANGENDOEN, *16*
Brooklyn, New York

THE RATINGS

Software is rated on a scale of 1 to 5 in each of six categories:

POOR ■
FAIR ■■
GOOD ■■■
VERY GOOD ■■■■
EXCELLENT ■■■■■

NOT APPLICABLE = N/A

GRAPHICS: The quality and sophistication of the graphics, given the computer's capabilities.

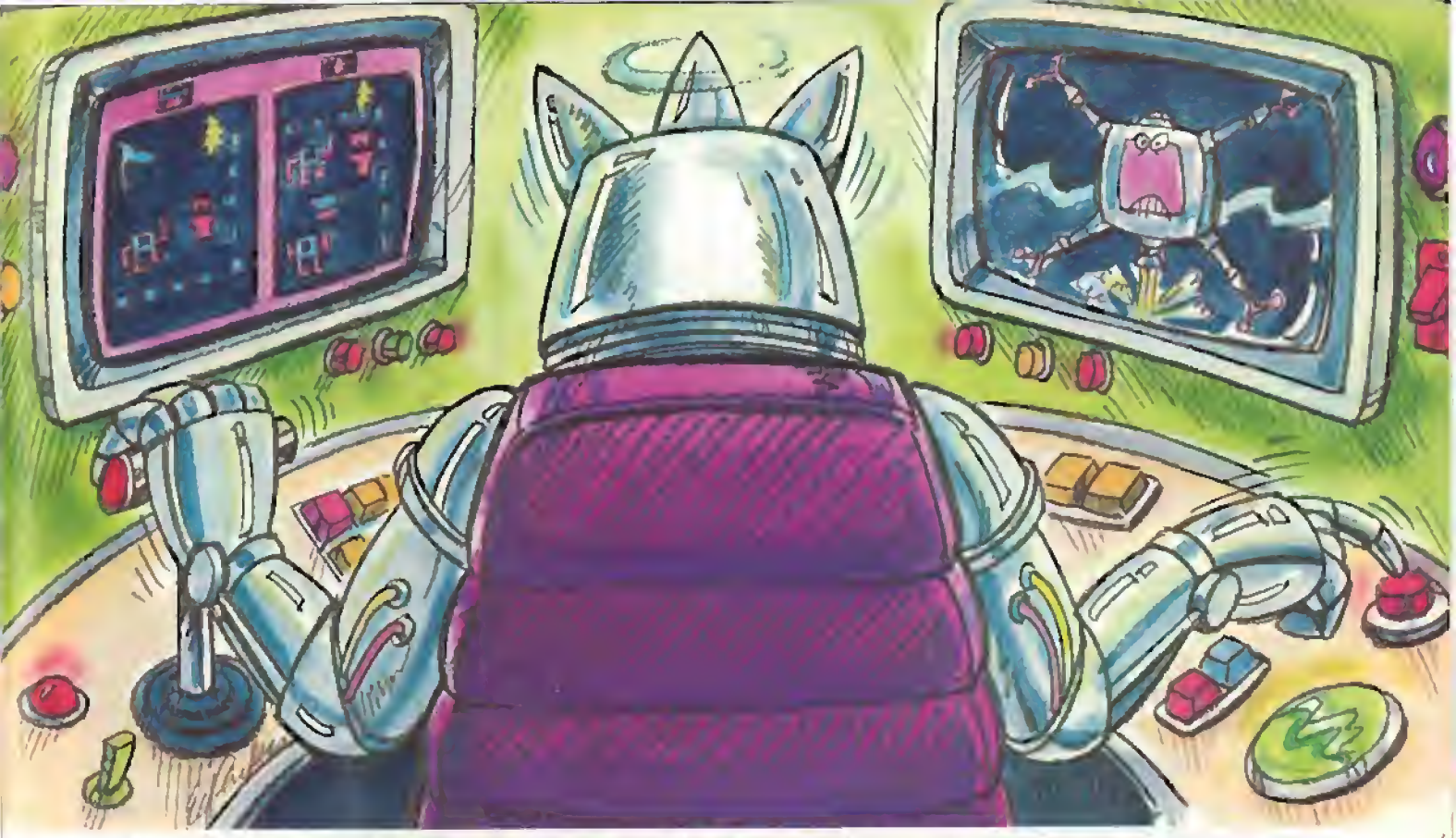
EXCITEMENT: The pace, pulse, and action of the game.

ORIGINALITY: The degree to which it's a trailblazer.

EASE OF USE: Its boot-up playability and simplicity. A low rating doesn't mean it's a poor game.

CHALLENGE: This speaks for itself.

SHELF LIFE: Its ability to maintain interest over time and not grow stale.



Show us the face of Max the Master Robot. And you may win your own talking robot.

Team up with a friend to defeat Max and his robot raiders in Bannercatch.

Only a handful of people have ever seen the face of the robot leader Max. Defeat Max and his demon robots and you'll join this elite group. And you and your teammate can win two walking, talking robots you can program yourself.

You'll battle Max and his robot marauders in a field bigger than any you've ever seen. Your team must invade robot territory and grab their flag before they take yours. But be careful; Max has devised a fiendish strategy against you. And, of course, you can't expect mercy from robots.

To make things even tougher, Max has taken a vow not to reveal his face until you conquer all his robots. Including Zweli the Invisible.

You'll need to learn binary numbers, map reading and, above all, how to work with your teammate if you want to win. But even if you go down to defeat, you may win two tickets to your favorite local sports event. See the package for contest details.

You can pick up Bannercatch where you buy software. Or write to Scholastic Inc., Dept. EW, 730 Broadway, New York, NY 10003.

But please remember, only a handful of people have gone face-to-face against Max and survived.

Scholastic

The Most Trusted Name in Learning

Available for Apple, Atari, Commodore and IBM.

BEYOND CASTLE WOLFENSTEIN

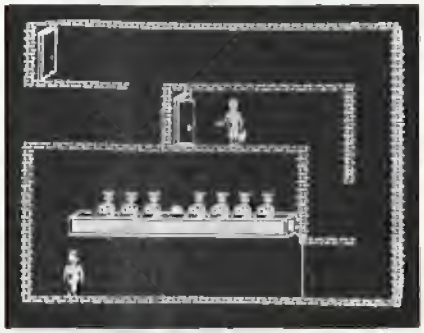
Reviewed on Apple, 48K (disk). Also available for Commodore 64 (disk). Muse Software, 347 N. Charles St., Baltimore, MD 21201; (301)659-7212. $34.95

GRAPHICS:
EXCITEMENT:
ORIGINALITY:
EASE OF USE:
CHALLENGE:
SHELF LIFE:

Good news for all you action-adventure fans: the long-awaited sequel to *Castle Wolfenstein,* one of the most popular games around, is now on the market.

The format is similar, but the object is different this time around. Instead of getting out of a prison, you get *into* the Fuhrer's secret conference room. Armed only with a pistol, 10 bullets, a couple of passes, and some money to bribe guards, you must infiltrate the Fuhrer's bunker, drop off a time bomb, and get out before it goes off, all with a series of keyboard commands.

Right after entering the bunker, an SS guard stops you in your tracks. Don't panic! You're in an enemy uniform, so if you show him the proper pass, he'll let you through. If you don't have the right one, you can try to bribe him. When bribed, guards sometime offer hints on how to win the game. If the situation gets desperate, you can always knock the guard off. Conceal the body, though. If you don't, another guard may find it and set off an alarm.



Your first task is to find the bomb a fellow agent smuggled in. It's in a closet somewhere. Some of the closets open freely, others are locked. You have to search them all till you find the one with the bomb. Next, you make your way down a few floors, leave the Fuhrer his "present," and get out fast.

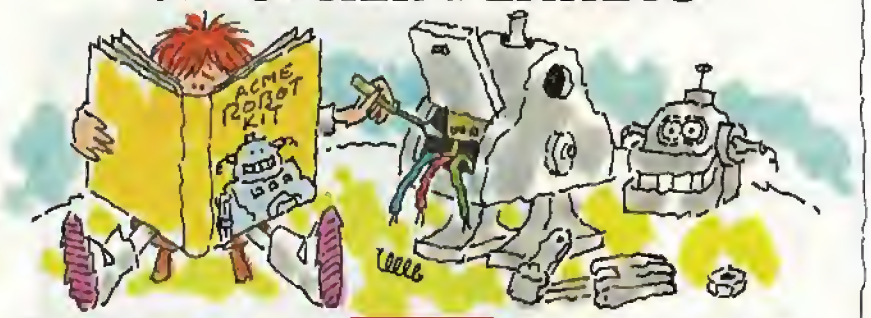
This game has all the elements that made the original so much fun to play—the action of an arcade game, the strategy of an adventure, and great sound (the guards actually speak German). But it is annoying, and seemingly unavoidable, to have that long text intro appear each and every time you restart the game.

The game's a lot like the original. Sure, the plot's different and there are a few changes in the rules, but for the most part, it's the same game.

If you've never played *Castle Wolfenstein,* though, catch this enhanced version. It'll be a classic like the first one.

RICH UHLIG, *17*
Toledo, Ohio

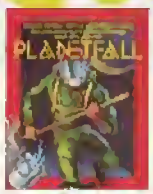
HOW TO MAKE FRIENDS ON OTHER PLANETS



First, go to another planet. (That's easy if you're traveling through space in PLANETFALL,* the great science fiction comedy from Infocom's interactive fiction line.)

Next, find a robot nobody's using. Then, to make him start up, type in your command: TURN ON THE MULTIPLE PURPOSE ROBOT... You've just made a robot friend who'll follow you anywhere.

And you'll be glad you have a faithful follower—there's no telling what will happen next in PLANETFALL. Because, like all of Infocom's interactive fiction, PLANETFALL's designed so that whatever *you* choose to do affects what will happen next. And there'll be plenty happening—it's an adventure filled with everything from dread diseases to mutant monsters, and it can last for weeks or even months.



Get the closest thing on a disk to really going into outer space. Get PLANETFALL*. It's not just a great adventure—it's a great way to make friends!

INFOCOM™

*It's compatible with almost every popular home computer. PLANETFALL is a trademark of Infocom, Inc.

THE CASTLES OF DR. CREEP

For Commodore 64 (disk). Joystick(s) required. Broderbund, 17 Paul Drive, San Rafael, CA 94903; (415) 479-1170. $29.95

GRAPHICS:
EXCITEMENT:
ORIGINALITY:
EASE OF USE:
CHALLENGE:
SHELF LIFE:

The idea of a horror computer game is nothing new. Lots of games deal with the subject. But *The Castles of Dr. Creep* really stands out in the crowd.

Not only is it very enjoyable and challenging, but it's the first computer game that really captures the feeling of all those great old horror movies. Not the stomach-churning gore that fills today's horror movies, but the eerie atmosphere of the original *Frankenstein* and *Dracula*.

The villain here is Dr. Creep, an odd old man who has offered to sell you one of his castles dirt cheap (you can choose which from a menu of 13). There's a catch, though. Once you've entered a castle there's no way out. At least not until you've taken a complete tour of it. And you'd better make haste. If you're not out in time, Creep will come to take you away to his laboratory.

There is only one door leading out of each castle, and many, many rooms to search before you find it. Standing in your way are mazes of ladders, sliding poles, and teleportation booths, not to mention disappearing trapdoors, moving floors, ray guns, force fields, and lightning machines. And these aren't even the greatest dangers. You also have to contend with mummies and Frankensteins. It's a good idea to grab a friend and another joystick (yes, two can play at the same time). Besides, you'll need all the help you can get.

The graphics are outstanding. Each room is displayed in 3-D, and all of the animation is wonderful, especially the mummies who lumber along with their arms outstretched.

The sound is equally good, though there are very few sound effects. I wonder why the programmers didn't include cliches like echoing footsteps, or maybe a groan or two.

The Castles of Dr. Creep is

great. It has its share of action and strategy, but more than that, it has atmosphere. It has style. It has excitement. It has thrills galore. It has everything short of Alfred Hitchcock's voice crooning "Goooood eeeeeeeevening...." Oh, well, you can't have everything.

CHARLES ARDAI, *14*
New York, New York

HOW TO BLOW UP A RUBBER RAFT

First, you need a reason to use a rubber raft. (That's a snap if you've got ZORK® I, the classic fantasy story from Infocom's interactive fiction line. Because you'll be hunting twenty fabulous treasures while dodging every kind of evil under the earth.)

Next, type in your command: BLOW UP THE RUBBER RAFT WITH THE AIR PUMP... But watch it, or you might just blow up the raft until you blow yourself to smithereens!

There's no telling what will happen next in ZORK I—because, like all of Infocom's interactive fiction, ZORK's designed so that whatever *you* choose to do makes the next thing happen. And you won't run out of things to do, either. The underground empire of ZORK is so huge, your adventure can last for weeks or even months.

So if you want the closest thing on a disk to really exploring an underground world, get ZORK I*. But brace yourself for the action—it'll blow you away!

INFOCOM™

*It's compatible with almost every popular home computer. ZORK is a registered trademark of Infocom, Inc.

JACK ATTACK

For Commodore 64 (cartridge). Joystick required. Commodore Business Machines, 1200 Wilson Drive, West Chester, PA 19380; (215) 431-9100. $29.95

GRAPHICS:
EXCITEMENT:
ORIGINALITY:
EASE OF USE:
CHALLENGE:
SHELF LIFE:

The idea behind *Jack Attack* is deviously simple: As Jack, a cute little critter resembling a balloon with antennae and feet, you must squash all the bouncing heads before they squash you.

The game has four major elements: blocks that can be pushed and pulled across the screen to accomplish a variety of tasks, from setting up stairs to squashing heads; a floor (partially composed of water in some screens); floating platforms that you hop on for bonus points; and a clock that measures your performance.

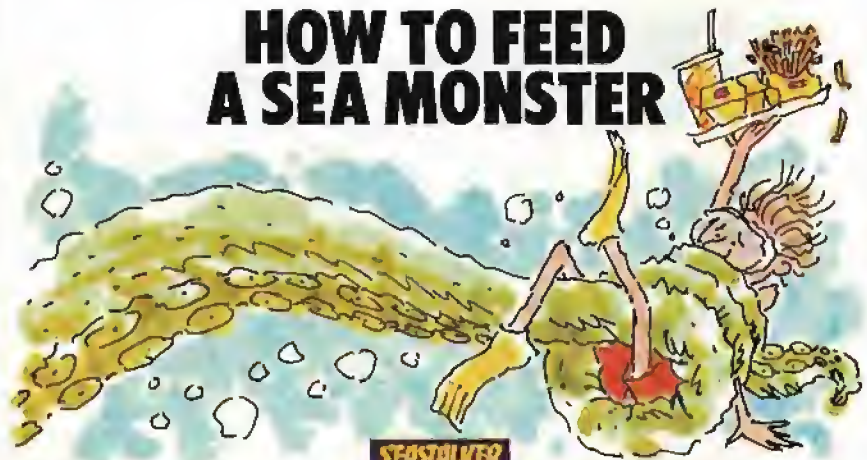
Graphically speaking, the game is very appealing. Although the heads leave a little to be desired as monsters, Jack himself is well-animated. There's not too much in terms of visual variety, but the game does very well with the little it has to work with. All 64 screens are cleverly arranged and each is a different test of coordination, strategy, and survival.

To survive, you must master all of Jack's many abilities. He can move left or right, push blocks, pull blocks, and leap straight up or in either direction. It takes a lot of practice.

At first I thought *Jack Attack* would suffer from the problem that goes along with other cute and uncomplicated cartridge games. That is, lack of variety and challenge. But Jack pulled through. As you advance through the levels, each demands more than the last.

RICHARD AKERMAN, *16*
Truro, Nova Scotia

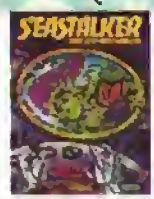
HOW TO FEED A SEA MONSTER



First, locate a sea monster. (The best place to find one is in SEASTALKER,™ the brand-new undersea story from Infocom's interactive fiction line.)

Next, type in your command: GET OUT OF THE SUBMARINE AND FEED THE CATALYST CAPSULE TO THE MONSTER. Then, swim for your life! Because the trouble with feeding sea monsters is, the monster might decide to feed on you!

There's no telling what will happen next in SEASTALKER. Because, like all of Infocom's interactive fiction, SEASTALKER's designed so that what happens next depends on what *you* decide to do. And you'll be doing plenty, too—your voyage can last for weeks or even months.



So get the closest thing on a disk to going on a real-life sea adventure. Sink your teeth into SEASTALKER*. But when you do—watch out!—or you might just find out somebody has a sweet tooth for you!

INFOCOM™

*It's compatible with almost every popular home computer. SEASTALKER is a trademark of Infocom, Inc.

SUNDOG: FROZEN LEGACY

For Apple, 64K (disk). Joystick required. FTL Games, 7907 Ostrow St., Suite F, San Diego, CA 92111; (619) 279-5711. $39.95

GRAPHICS:
EXCITEMENT:
ORIGINALITY:
EASE OF USE:
CHALLENGE:
SHELF LIFE:

SunDog's designers must have really put a lot of time into programming this game. The graph-

FAMILY COMPUTING: THE MAGAZINE THAT TURNS YOUR HOME COMPUTER INTO A FAMILY COMPUTER

Enter a Charter Subscription now and save up to 50% off the cover price and get a FREE Gift too!

FAMILY COMPUTING, the timely magazine from Scholastic, turns "computerese" into computer-ease—so your whole family can get more out of home computing. Month after month, you'll get plenty of practical, educational, recreational and fun ideas for every member of your family.

Even if you don't have a computer at home yet, you'll want to read FAMILY COMPUTING because we'll lead your family into the computer age step by step. With hard-hitting ratings that help you buy only the hardware and software you need. And useful programs (for all popular brands) that will help you get the most out of your computer once you have it—and save you money!

Each issue addresses new challenges and brings you new ways your family can use your computer for school, home business, career, household management and, of course, entertainment—with games, puzzles and fun for the entire family.

Take advantage of our Charter Subscription offer, and you'll get 12 fun-and-fact filled issues of FAMILY COMPUTING for just $17.97, a savings of 40% off the newsstand price. Or, save even more with 24 issues for just $29.97—a 50% savings off the cover price. And if you're not satisfied with FAMILY COMPUTING—for any reason—you may cancel your subscription at any time and receive a full refund on all unmailed issues.

FREE with your paid subscription

The FAMILY COMPUTING Computer Dictionary defines over 500 terms with colorful illustrations and clear, non-technical language. This essential reference is a Scholastic exclusive, and it's yours FREE with your paid subscription.

To order, complete and mail the attached postage-paid reply card today! If card is missing, complete and mail coupon at right.

YES! Enter my Charter Subscription to FAMILY COMPUTING at up to 50% savings. I understand I will receive FAMILY COMPUTING's exclusive Computer Dictionary FREE with my paid subscription.

☐ 12 issues for $17.97—that's 40% off the cover price!

☐ 24 issues for $29.97—that's 50% off the cover price!

☐ Payment enclosed. Send my FREE Dictionary right away!

☐ Please bill me. Send my FREE Dictionary upon receipt of payment

5DK21

Name_____
(Please print)

Address_____

City _____ State ___ Zip _____

Send to: FAMILY COMPUTING
P.O. Box 2512,
Boulder, Colorado 80322

Please allow 4-6 weeks for delivery of your first issue. Rates good in U.S. only. Canadian residents add $6.00 per year.

FAMILY™ COMPUTING

Guarantee: If not satisfied, you may cancel your subscription at any time—for any reason—and receive a refund on all unmailed issues.

America's fastest growing computer magazine, FAMILY COMPUTING takes to the air on the Lifetime Television Network with computing information and entertainment for the whole family. Host Larry Sturholm shows you how you can make computers work for you at work, at home, at play—with experts, on-location features, games, humor, demonstrations of computer art and the latest in computer information.

Focusing on people, not machines, FAMILY COMPUTING makes the growing computer technology simple, easy...and fun...for everyone.

Check your local television listings for time and channel.

FAMILY COMPUTING™

A Scholastic Productions presentation in association with A. H. Perlmutter, Inc.

Lifetime™

Hearst/ABC-Viacom Entertainment Services

ics are superb and the overall play of the game is very smooth and realistic.

It'll take you a while to learn all there is to know about *SunDog* because there's a lot to it. At the start, you find out you've inherited a star freighter named *SunDog* from your uncle, who died under mysterious circumstances. You also receive a contract he signed to help a group of aliens, called "The Society of the New Faith," build a colony on another planet.

To win the game and complete the contract, you must perform several tasks. First, find Banville, the colony. Next, buy all the materials necessary to build the colony (your uncle was given the necessary money). Third, find the scientifically frozen colonists who wait in various warehouses scattered on different planets. Sound easy? Piece of cake. That is, *after* you've figured out how to repair the ship, dealt with the pirates who try to make you throw out your ship's cargo, the muggers who attack you in the streets, the cons who sell you garbage for lots of money, and several other obstacles.

One of the best features of the game is that everything's controlled by the joystick. You control your ship, the ship's detachable pod (for traveling through cities), and your character who makes contact with many different individuals that inhabit various planets. All your decisions are made with the joystick. Just guide the cursor to one of the choices presented on the screen, press the button, and *voila*, it's done.

SunDog is a very solid game. It's not a mindless shoot-'em-up and it's not very complicated. It's simply a well-designed and clearly put-together business game, role-playing game, and adventure game all rolled into one.

CHRIS GINTHER, *12*
St. Paul, Minnesota

CELL DEFENSE

For Commodore 64 (disk). Version planned for Apple II series. Joystick required. HesWare, 150 N. Hill Drive, Brisbane, CA 94005; (415) 468-4111. $29.95

GRAPHICS:
EXCITEMENT:
ORIGINALITY:
EASE OF USE:
CHALLENGE:
SHELF LIFE:

Everything is calm as you travel through the human organism. Suddenly, an attack signal appears on the scanner. You know what that means: Virus Attack!

In an instant you change yourself into a macrophage (that's a special cell that combats infection) and head for the invading virus. You're almost there when the scanner flashes again: Another virus is attacking a distant part of the body. Gobble up the original virus and move on to the next. By the time you arrive, though, it's too late. The virus has implanted itself inside the Labile Cell (that's the muscle cell) and is already beginning to infect it. You've got to find the T-Cell. Better move quick.

These cells, which defend the body from invading germs, are your last hope.

No, this isn't a glorified *Pac-Man*. It's a game that pits foreign viruses against the immune system in a vicious contest for the human body. As "caretaker" of the cells, you have to defend them against the evil viruses that lurk about. Your four defenses—the macrophage, antibodies, interferon, and T-Cells—each have specific jobs that range from destroying infected cells to patrolling the blood stream. To use these tools, you'll have to be on your toes—always ready for the surprise attack.

It's tough to master. Even after you play several rounds, you'll still have a lot of room for improvement. You can adjust the game, however, to make it more challenging. Change how healthy cells are at the game's start. Or pick the number of cell layers you must protect.

You don't have to know a lot about science to like this game. Who knows, though, a couple of hours with *Cell Defense*, and you might just become a biology whiz, in spite of yourself.

JO ANNE SANCHEZ, *13*
El Paso, Texas

STRATEGY

TIPS, TRICKS, AND HINTS

ZORK I

AVAILABLE FOR: *Apple, 48K; Atari, 32K; Commodore 64; IBM PC/PCjr, 48K; TI-99/4A, 48K; TRS-80 I/III/4, 48K; all versions on disk. Infocom, Inc., 55 Wheeler St., Cambridge, MA 02138; (617) 492-1031. $39.95. (Commodore version from Commodore, TRS-80 version from Radio Shack).*

TYPE: Text adventure

IN BRIEF: The world of *Zork* is a great place to visit, but you wouldn't want to die there.

When the game begins, you find yourself standing in front of a boarded-up house. Everything seems harmless enough at first. But after a few hours of letting your curiosity lead you through forbidding passages and dark hallways, you find there's a lot more to the territory than you first expected. Treasures, a nasty troll, and confusing mazes are only a few of the things you'll encounter.

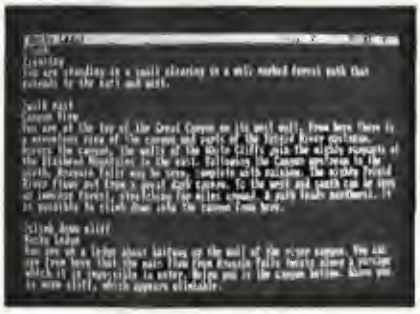
For a little assistance on your trek through this dangerous and puzzling land, examine the map and read on.

The pile of plastic at the base of the dam *does* have a use, but you're going to need the air pump from the north shore of the reservoir to find out just exactly what it is.

Don't waste lights. Use alternate sources when possible.

There is a simple way to keep the vampire bat from attacking you. You'll find it in your lunch bag.

True, coal isn't much of a treasure, but just think what you could make out of it if you had the right amount of pressure. (Hint: Think of the old song, "Pressurized Coal is a Girl's Best Friend.")



A sample screen from *Zork*.

Before entering the house, search the premises a little; you may find something that will be of use to you later.

Hold onto the jewelled egg. You can't open it, but maybe someone else can—someone who's used to picking locks, perhaps.

Don't even think of carrying all the treasures you've found. A good safe place for them is somewhere in the house.

CHARLES ARDAI, *14*
New York, New York

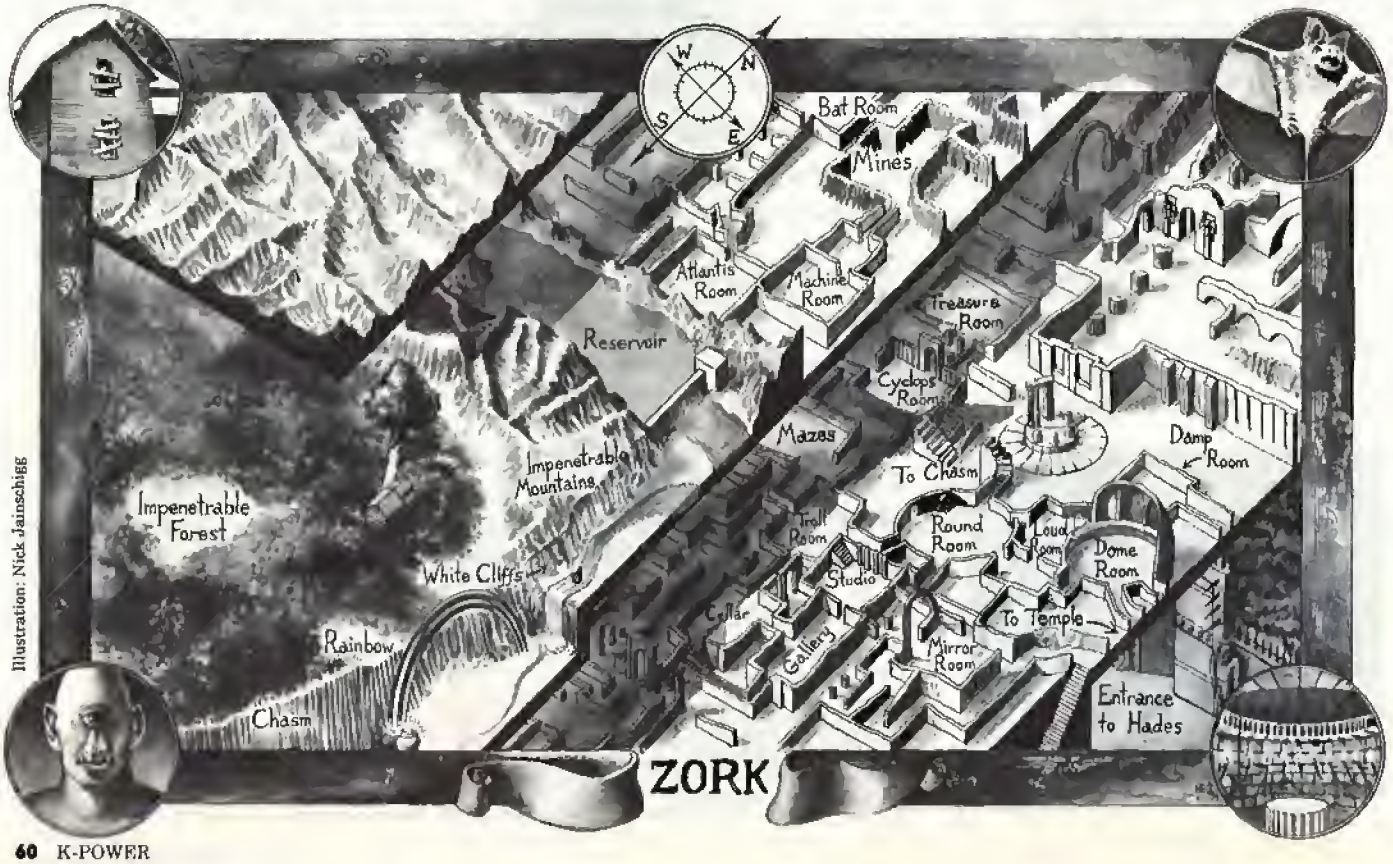
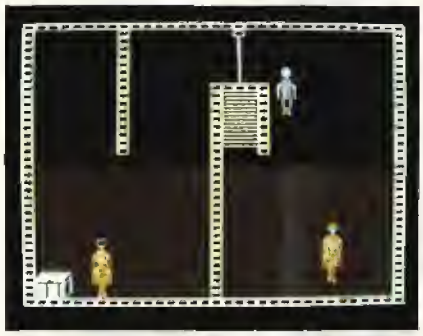


Illustration: Nick Jainschigg

CASTLE WOLFENSTEIN

AVAILABLE FOR: *Apple, 48K; Atari, 48K; Commodore 64, IBM PC/PCjr, 128K (color graphics card required); all versions on disk. Muse Software, 347 N. Charles St., Baltimore, MD 21201; (301) 659-7212. $29.95*
TYPE: Strategy/adventure shoot-'em-up
IN BRIEF: Inspired by *The Guns of Navarone*, the action-packed World War II movie, *Castle Wolfenstein* puts you in the shoes of a prisoner attempting to escape from a high-security Nazi prison.



Moments before being executed, a fellow prisoner gives you a gun stolen from a guard. He then tells you about the secret plans for "Operation Rheingold," which lie hidden somewhere within the castle walls. It's up to you to find the plans, avoid the many guards and SS officers roaming the different rooms throughout the castle, and get out alive. To survive, you'll need fast reflexes to dodge and shoot guards, a quick mind to make split-second decisions, and practice, practice, practice.

When entering a new room, pop in just for a moment, notice the positions of the guards, and then run out. This way you can have your gun ready and aimed when you reenter the room.

If you're in an enemy uniform, make sure you put your gun away before entering the next room. Guards will shoot at the sight of a gun.

Make sure you don't throw grenades at close range unless absolutely necessary. The explosion will remove your enemy uniform and bulletproof vest.

If you want to capture a guard, never try it from above. If you do, *he* will capture *you*.

Move carefully. Hitting a wall during combat forces you to put your gun away.

If you run into an SS officer, capture him, take his bulletproof vest, then terminate him.

To speed up the chest-opening process, hold down the spacebar (and REPEAT key, if necessary).

If you drink the liquid contents of a certain chest, you won't shoot straight. Find some Bratwurst and eat it to regain your aim.

—DAVID LANGENDOEN, *16*
Brooklyn, New York

HINT HOTLINE

Still stumped by your favorite game? Need a little assistance for a game we haven't covered? Try these sources:

The Book of Adventure Games, $19.95; Arrays, Inc./ The Book Division; (213) 410-9466. Stuffed with over 300 pages of maps, hints, and instructions, this treasure chest of information covers just about every notable adventure and fantasy/role-playing game on the market.

A Shortcut Through Adventureland (Vols. I & II), $9.95 each; Datamost, Inc.; (818) 709-1202. The first volume covers a variety of text and graphic adventures. The second offers hints for Infocom text adventures.

CompuServe's Games Special Interest Group. If you have access to a modem, another great place to search for clues is CompuServe's GameSIG run by Scorpia (who else?), the group's Systems Operator. You can reach the GameSIG archives once you're on CompuServe by typing GO GSA when asked to indicate what service you'd like to use.

A company called Ask Alice, P.O. Box 3074, Stony Creek, CT 06405; (203) 453-6968, supplies maps and clues for several popular adventure games for $4 each. Contact them for their list.

If you're still stumped, take a peek at these pages in each issue. Maybe *we* can help.

In the meantime, maybe the rest of you would like to share some tips or tricks you've discovered with struggling fellow gamers. If so, send them our way! We'll publish the most helpful hints along with your name and mail you $20.

Just jot down your hints (with maps or diagrams, if necessary) and mail them to: HINT HOTLINE, c/o K-POWER, 730 Broadway, New York, NY 10003. Please include the title of the game, its manufacturer, the computer you played it on, your name, age, address, and phone number.

HOW TO SURVIVE FANTASY/ROLE-PLAYING GAMES

Life isn't easy for fantasy/role-playing game players. The top games in that category, the *Wizardry, Dunjunquest (Apshai),* and *Ultima* series, are among the most challenging on the market. And it's no wonder, either. There are more monsters and dangers lurking in these games than in any others.

Beginners usually have an especially rough time tackling games of this sort. One reason is that there's a lot to learn before you can even get started. Another is that dungeon monsters have very little patience for novices.

So, if you're having a little trouble with the game you're currently playing, or want to get off to a good start on your first game, take heed of the following words of wisdom...and don't leave home without them.

Absolutely the first thing you must do is read the game's manual. Become familiar with the commands used. If there is a summary sheet, keep it next to you when you play. If the game doesn't have a summary sheet, make up your own. Note what character types are in the game, what abilities they have, and what their limitations are. Go over the spells, see what they can do, and which characters can cast them. If there are details on monsters in the game, make note of what they are.

When equipping characters, get the best armor and weapons you can afford. Since magic users usually need the least armor and therefore often have the most money left over, use their gold to purchase better armor for those who need it. In single-character games like the *Apshai* series, you'll have to make do with whatever gold you start with, so go for protection first, but make sure you have something left over to buy at least one weapon.

Make maps. Most dungeon levels are large, with many rooms, doors, corridors, intersections, and traps. Getting lost is all too easy. Get some graph paper and take notes on anything special you come across. You'll never win the game if you don't know where you are, where you're going, or how to get back out of the dungeon.

When you're all set, head cautiously into the dungeon, keeping fighters up front and magic users in the rear.

Soon you'll encounter monsters. As you do battle, watch the displays carefully. Make note of how effective various spells are against different monsters, how much damage the monsters dish out to the group, how effective your fighters are, and how hard the monsters are to kill. You'll have a better idea of how to handle the enemy next time around.

If the members of your party survive their first encounter, get them out of the dungeon fast, before more trouble arrives. Fight and retreat is the best advice at this stage.

Battle the Antman in *Temple of Apshai* (Epyx).

These games are not meant to be finished in a day, a week, or, in some cases, even a month. But you'll have a good handle on whatever game you're playing after just a few tries. You'll know the best way to overcome the various monsters (at least at the beginning levels), you'll know how best to staff your party, and you'll have good maps to guide you on your expeditions. Then you can really begin playing in earnest. Progress will be swift and you won't have to suffer through seeing party after party reduced to mincemeat. And, as a result, the game will also become a lot more fun to play!

—SCORPIA

Fight off attack dogs in *Wizardry* (Sir-tech).

Cast a spell on thieves in *Ultima III* (Origin Systems)

CLASSIFIED

USERS' GROUPS

ADAM OWNERS!!!
LOCAL ADAM USERS GROUPS!!!
Get info regarding THE UNITED STATES ADAM NETWORK
Write to: Raymond So
711 Ingram St., Forest Hills, NY 11375

HARDWARE FOR SALE

Don't pay higher prices!!!!
Peripherals/add-ons/software/disks
Call or write for catalog 75¢
C-Cube Systems (718) 951-2321
1332 East 100th St., Bklyn, NY 11236

BE A WINNER!!!
Call or write for low low prices: Commodore, Atari, TI, IBM, Apple, & other name brands. Vast selection of software and accessories. Manufacturers' Warrantees.
HARDWARE SOFTWARE ANYWARE CO.
57 13th St., Bklyn, NY 11215
(212) 768-3672 Pete Peterson

SOFTWARE FOR SALE

VIC-20/C-16 EDUCATIONAL SOFTWARE! Send for Free program summaries. Windrider Software, Bx, 1514-KP, Lemon Grove, CA 92045

SUPER EXTENDED BASIC
100+ Assembly Language Subroutines for use with TI-99/4A X-Basic, XM. Disk $99.95. J&KH Software, 2082 S. Abingdon St., Arlington, VA 22206. (703) 820-4131. VCR Titling Pgm. $29.95

Over 100 programs just for KIDS! Fun, Educational, Inexpensive. Commodore 64 and TI-99/4A. Write for brochure. KIDware: Box 9762, Moscow, ID 83843

Software junkie?? Apple, IBM. Games galore! Up to 40% off. Free Shipping/Free brochure. Soft Source-R, Dept. P, Box 2931, Joliet, IL 60434

Biggest TI-99/4A selection. Newest exciting software & hardware bargains. Hard to get items. Free catalog. Fast service. DYNENT, Box 690, Hicksville, NY 11801

Educational software for the hungry child. C 64/ Apple/IBM our specialty. Write for free price list: CHILDREN'S MENU P.O. Box 175 Staten Island, NY 10314 TAKE A BYTE AND SEE!

MISCELLANEOUS

Apple, Atari, & Commodore users can now use diskette flipside. How? By making another 'write' notch. Do it quickly, easily with Disk Notch!
It's like FREE DISKETTES!
Features: clippings catch & square notch cut. Same tool purchased by IBM & AT&T! Call with VISA/MC ORDER (800) 821-5226 ext. 404, or send: $14.95 + $1.50 s/h (CA add tax) to: Quorum, Box 2134k, Oakland, CA 94614

FLIGHT SIMULATOR GAMES

NEW **COCKPIT 64**
For the Commodore 64
- 100% Machine Language
- Windshield View
- 7 Airports

Tape **$29.95** Disk **$31.95**

	Tape	Disk
Runway (C64•16K VIC 20•Atari)	$24.95	$26.95
Sky Pilot (8K VIC 20•Atari)	$17.95	19.95
Flight Sim. II (C64•Apple•IBM)	N/A	$47.95
IFR (Commodore 64 only)	$29.95	$29.95
Air Traffic Controller (Apple)	N/A	$19.95

COD ORDER PHONE
WE SHIP WITHIN 48 HOURS
(312) 577-5154

SUSIE SOFTWARE
874A E. N.W. Highway
Mt. Prospect, IL 60056

K MARKET

K-MARKET is the advertising section designed to showcase the newest entries and best buys in computer-related products, accessories, and novelties.

To place Your Ad
Call (212) 505-3636
K-POWER
730 Broadway
New York, NY 10003

WE BUY WANTED! WE SELL

USED VIDEO GAME CARTRIDGES
(for Atari 2600™, Colecovision & Atari 5200™)
C.O.D. Phone Orders Accepted

JOIN OUR GAME CLUB

Prices Quoted On Phone

FOREST HILLS USED VIDEO GAME CARTRIDGES, INC
Dept. K, 63-56 108th Street
Forest Hills, N.Y. 11375
(718) 897-6100

wabash wabash wabash

Value Priced Diskettes!
6 Year Warranty! Hub Rings! 100% Error-Free!

5¼" Diskettes Soft or Hard Sector — Boxed

SS SD	$1.28 Each*
SS DD	$1.42 Each*
DS DD	$1.84 Each*
R DD (Flippy)	$2.19 Each*

Similar savings on 8", quad density and special format diskettes.
Bulk Diskettes, with envelopes deduct 5¢ per diskette.
Minimum order — 20 Diskettes.
Quantity Discounts Available
MI Residents, add 4% Sales Tax.
Shipping & Handling $3.00/50 Diskettes.
TO ORDER: Call or Write...

Precision Data Products
P.O. Box 8367
Grand Rapids, MI 49508
(616) 452-3457
Michigan 1-800-632-2468
Outside Mich. 1-800-258-0028

VISA **C.O.D.** MasterCard

•TI 99/4A•ADAM NEW IBM PC/Jr•TRS-80•

the Great American Software Exchange

WANTS YOU

JOIN TODAY!

TRADE IN YOUR USED computer books & software for new (or used) — it's BETTER THAN RENTING!

Write for FREE brochure or send $1.00 for CATALOG.
Please specify computer & model.

the GAS Exchange
Dept. FC • P.O. Box 1548
Springfield, VA 22151

TS 1000/1500/2068•ADAM•APPLE•ATARI•COM 64•VIC 20•

•WE BUY•SELL•NEW•USED•BOOKS•SOFTWARE•

FUTUREVISION™ INTRODUCES

VIDEOTUNES™
For The ADAM COMPUTER
$24.95

FUTUREVISION™
P.O. BOX 34
N. BILLERICA, MA. 01862
617-663-8591
visa or mastercard accepted

*Adam is a trademark of Coleco Industries

CONTEST

WHAT'S IT FOR?

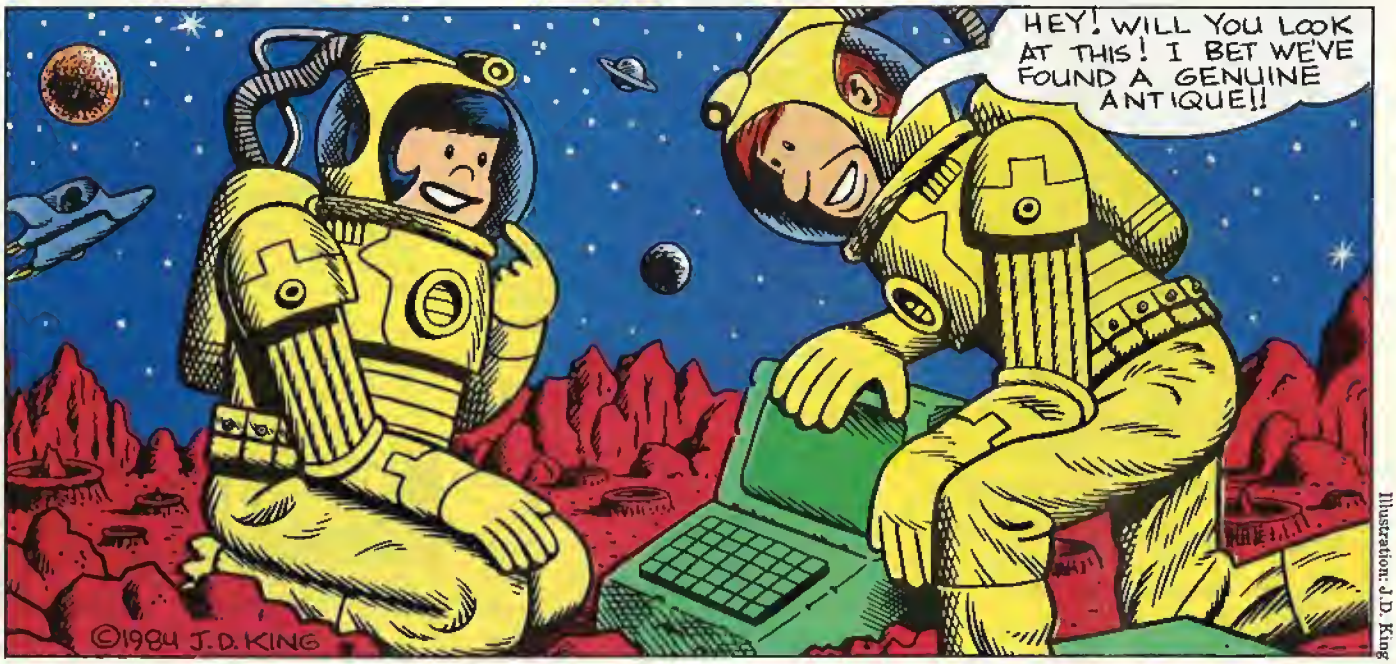


Illustration: J.D. King

The K-POWER staff was talking about the new *2010* movie, and comparing it to the original *2001: A Space Odyssey*. We started wondering about what computers would do in 2010.

Do you think you'll have the same computer you're using now in 2010? If not, what will the computer you use in 2010 be able to do that today's can't?

We want you to be straight with us. So, Assistant Editor Michael Tuomey will pick out the 10 winning entries at random. Each lucky winner gets a K-POWER T-shirt. Winners will be announced in the May/June issue.

Just fill out this questionnaire and send it to:

WHAT'S IT FOR?
c/o K-POWER, 730 Broadway
New York, NY 10003

All entries must be received by Jan. 29, 1985. Void where prohibited.

WHERE ARE THEY GOING?

1. Right now, I use my computer mostly for (circle one): a) playing games b) programming c) word processing d) other _____.

2. I think my computer will last for (circle one): a) 5 years or less b) 5 to 10 years c) 10 to 20 years d) more than 20 years.

3. By the year 2010, computers will be used for

_____

_____.

4. I am a male _____ female _____. Age _____.

5. I got this copy of K-POWER from: newsstand ___ book club _____ subscription _____ other _____.

6. I have the following computer(s):

_____.

7. Please rate all the features in this copy of K-POWER. Use this rating system:

4 = Excellent!
3 = Good
2 = Not bad
1 = Pretty bad
0 = Didn't read it

a) ___ Editor's Note
b) ___ Logon
c) ___ Compuzine
d) ___ Silicon Alley
e) ___ Scrolling in Dough
f) ___ Dr. Kursor
g) ___ K-NET
h) ___ Star Trek Games
i) ___ Hobbies
j) ___ Portables Guide
k) ___ Hacker Heaven programs
l) ___ Pixel That!
m) ___ Compucopia
n) ___ Microtones
o) ___ Micronotes
p) ___ Screening Room
q) ___ Strategy
r) ___ Contest

Name _____

Address _____

City _____

State _____ Zip _____

Telephone number (___) _____

T-shirt size: S M L XL (circle one)

We don't care which computer you own. We'll help you get the most out of it.

CompuServe puts a world of information, communications, and entertainment at your fingertips.

CompuServe is the easy to use videotex service designed for the personal computer user and managed by the communications professionals who provide business information services to over one fourth of the Fortune 500 companies.

Subscribers get a wealth of useful, profitable, or just plain interesting information like national news wires, electronic banking and shop at home services, and sophisticated financial data. Plus, a communications network for electronic mail, a bulletin board for selling, swapping, and personal notices and a multichannel CB simulator.

You get games on CompuServe, too. Classic puzzlers, educational, sports and adventure games and fantastic space games featuring MegaWars, the "ultimate computer conflict."

The videotex service for you, no matter which computer you own. To buy a Starter Kit, see your nearest computer dealer. To receive our informative brochure or to order direct, call or write:

CompuServe

Consumer Information Service, P. O. Box 20212
5000 Arlington Centre Blvd., Columbus, OH 43220
800-848-8199 In Ohio Call 614-457-0802
An H&R Block Company

IT'S NOT HOW MUCH YOU PAY.

IT'S HOW MUCH YOU GET.

The computer at the top has a 64K memory.

It has the initials I, B, and M. And you pay for those initials—about $669.

The Commodore 64™ has a 64K memory.

But you don't pay for the initials, you just pay for the computer: $215. About one third the price of the IBM PCjr.™

The Commodore 64 also has a typewriter-type keyboard with 66 typewriter-type keys. (Not rubber chicklet keys like the IBM PCjr.)

It has high resolution graphics with 320 x 200 pixel resolution, 16 available colors and eight 3-dimensional sprites.

It has 9-octave high fidelity sound.

The Commodore 64 is capable of running thousands of programs for home and office. And if you add a printer or color monitor, disk drive and a modem—all together it just about equals the price of the IBM PCjr all alone. With no peripherals.

So you can buy a computer for a lot of money.

Or buy a lot of computer for the money.

COMMODORE 64

IT'S NOT HOW LITTLE IT COSTS,
IT'S HOW MUCH YOU GET.